The Impact of Coaching as an Applied Leadership-Style on Project Teams: An Exploratory Research of Project Management-by-Coaching

by

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Abstract

This study explored the effects of management-by-coaching as leadership-style in project management to raise team performance and motivation and understand its contribution to project success.

The study was conducted as a longitudinal case study following a critical realist paradigm and a traditional action research methodology along with grounded theory methods of analysis. It observed four distinct case studies at the web department of a telecommunication company in Germany over a period of 12 months. In four cycles of coaching and research the effects of team coaching were observed and explored to develop a comprehensive theory of project management-by-coaching (PMC).

In the course of the study PMC was found to be a moving, flexible and dynamic conception, which helped creating an environment for generating positive real-life experiences, and provided a significant influence on the individuals' and teams' performance. The study revealed that PMC to manage group dynamics and address interpersonal relations was a fundamentally option-driven, cyclical and iterative approach. With its on-going planning phase, it focused on practical actions, and therefore turned out to be a broader and more flexible approach than classical coaching. From the study a process of PMC was developed to set out all stages and main learning points, to apply the approach to other projects.

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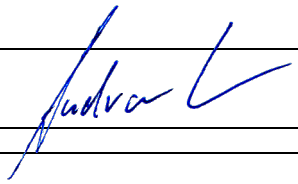
Signature of Candidate*:*		Date:	12.07.2016

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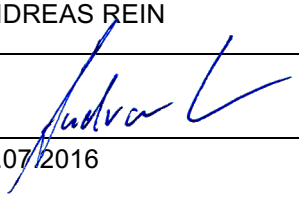
Signature of Individual Submitting:	
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List of Acronyms

Acronym	Meaning
AR	Action Research
BA	Business Analysis
CDM	Case Dynamics Matrix
CEM	Coaching Effects Matrix
CEO	Chief Executive Officer
CIO	Chief Information Officer
CMS	Content Management System
CS	Case Study
CSF	Critical Success Factor
DRI	Directly Responsible Individual
EC	Executive Coaching
IPMA	International Project Management Association
PMBoK	Project Management Body of Knowledge
PMC	Project Management-by-Coaching
PMI	Project Management Institute
PRINCE	PRojects In Controlled Environments
ProgM	Programme Management
QA	Quality Assurance
RC	Release Candidate
UAT	User Acceptance Test
WBS	Work Breakdown Structure

Definition of Terms

Coaching

Coaching in terms of this study is defined as:

> *"the facilitation of learning and development with the purpose of improving performance and enhancing effective action, goal achievement and personal satisfaction. It invariably involves growth and change, whether that is in perspective, attitude or behaviour" (Bluckert 2005: 173).*

Management-by-coaching

Management-by-coaching is characterised by management functions of briefing and debriefing associates by using coaching techniques. The associates are not necessarily required to be informed of the approach or to perceive the conduction of a coaching intervention (Whitmore 2002).

Project

The author uses a project definition, referred to as classical project management, for this study that conflates Turner & Müller's (2003) definition and Dvir, Sadeh & Malach-Pines (2006) amendments regarding projects varying in structure when compared to their mother:

> *A Project aims at delivering beneficial objectives of change by building a temporary organisation within a mother organisation, with resources assigned to undertake a unique, novel and transient endeavour, and to manage inherent uncertainty and need for integration.*

Project Leadership

Leadership is defined as the relationship through which one person influences the behaviour of other people (Duygulu & Ciraklar 2008). In terms of this study it is summarised as guiding others towards the attainment of project objectives.

Project Management

The definition of project management is based on the concepts provided by the PMBoK Guide (PMI 2013), PRINCE2 (TSO 2009), and Turner & Müller (2003).

> *"Project Management is the better control and use of existing resources in a temporary organization to which resources are assigned to undertake a unique, novel and transient endeavour managing the inherent uncertainty and need for integration in order to deliver beneficial objectives of change" (Turner & Müller 2003: 7).*

Project Management Success

In contrast to project success project management success focuses on the process (Nixon, Harrington & Parker 2012), and considers the stakeholders directly involved into the project execution and their knowledge and skills applied. It mainly refers to the work of the project manager and the successful application of tools and techniques for project execution.

Kerzner (2009: 3) defines successful project management as

> *"having achieved the project objectives within time, within cost, at the desired performance/technology level, while utilising the assigned resources effectively and efficiently and as being accepted by the customer."*

Project Success / Product Success

No consistent definition of project success can be found in the literature, as project success is no objective measure. It is always determined by the project organisation and environment, and focuses on the outcome and achievement of pre-determined project goals (product) (Anantatmula 2010; Turner & Müller 2007). It is considered a success when it meets stakeholder's criteria, achieves pre-determined goals and is perceived a success by the project's stakeholders.

Project Team

A Project Team is built to make up the temporary project organisation and to share responsibility for a shared outcome and detailed tasks under restricted time and budget (Banham 2009).

Team

Teams are characterised by members working interdependently toward collective goals and by a period of stable membership (Hackman 2002). They are viewed as a system utilising resources, maintaining internal processes and producing specific outputs (Mickan & Rodger 2000).

Transformational Leadership

Transformational Leadership is defined by guiding others towards the attainment of project objectives through creating strong identification with team members, and a shared vision that is based on more than just rewarding completion of project activities (Bass 1990; Keegan & Den Hartog 2004).

Work Team

Work teams are a contingent of two or more people who interact and positively influence each other and coordinate their work (Ba Banutu 2012). They are committed to a common purpose, goals and working approach for which they hold themselves mutually accountable (Nader, Shamsuddin & Zahari 2009).

CHAPTER 1: Introduction to the Study

Most approaches to project management acknowledge that the leadership-style of the project manager directly impacts success and failure of a project (Turner & Müller 2005; Dvir, Sadeh & Malach-Pines 2006), and several authors assume that the leadership-style of the project manager is more critical to project success than classical project management skills (Turner 1999; Geoghegan & Dulewicz 2008; Berg & Karlsen 2007; Sumner, Bock & Giarmartino 2006; Nixon, Harrington & Parker 2012). But leadership skills of the project manager do not play a vital role in the project management approaches (PMI 2013; TSO 2009; GPM 2011).

Furthermore, project managers have to overcome the challenge of working from a low-power, informal position (Slevin & Pinto 2004), while providing the most beneficial leadership-style in project management, which according to Turner & Müller (2005), is characterised by leading through change. While a transformational leadership-style is recommended for project managers, management-by-coaching (Whitmore 2002) in the context of project management remains a practice without a theory. Only little research has been conducted into project management-by-coaching (PMC) models, resulting in a marginalisation of this approach to project management.

It is a central objective of this study to diminish the lack in theoretical and practical development, and to develop a theory of PMC.

1.1 Statement of the Problem

Although coaching is a growing industry (Mulec & Roth 2005), no standards or proven methodologies regarding the profession of coaching have yet been defined (Douglas & Morley 2001; Wasylyshyn 2003; Clegg *et al* 2005; Kampa-Kokesch & Anderson 2011), and rigorous empirical investigations on the effects of coaching are limited (Douglas & Morley 2001; Greif 2011). The effects of coaching cannot be fully explained using scientific methods (Greif 2011).

Within the field of project management, coaching has primarily been promoted as a development tool for project managers to enhance their personal and professional development (Bono *et al.* 2009; Peltier 2010). Most of the research into coaching in

the context of project management either concentrates on the effects of coaching interventions on project managers (Berg & Karlsen 2007), or on coaching project teams to increase their team performance. Only few studies consider the executive in the role of the coach, while no study considers the relevance of coaching as a leadership-style conducted by the project manager.

Project managers seem to underestimate the potential benefits of providing coaching assistance to teams (Hackman & Wageman 2005). PMC as performance-based coaching, focuses on motivational, consultative and educational coaching functions in different development areas (Berg & Karlsen 2007). It considers both professional (Hackman & Wageman 2005; Berg & Karlsen 2007; Peltier 2010) and personal development (Thamhain 2004; Kampa-Kokesch & Anderson 2011), and organisational performance (Wageman 2001) with the purpose to achieve a certain business outcome (Clegg *et al.* 2005).

There remains a vital need for coaching-specific research in project management into both the effectiveness and the design of PMC interventions. This study investigates the potential role of PMC in a software development project context.

1.2 Researcher's Reflection

In accordance with the direct professional implication of the results of this study it is important for the researcher to share the motivations for conducting the research.

Certified project managers, like the researcher himself, are not trained regarding interpersonal relationships within project teams. The effects of this lack in education reflect in several studies (Standish Group 2003; Aberdeen Group 2012): the increase of quality in project management methods does not reflect in project success rates. The literature proposes project success can be enhanced by using coaching techniques (Summer, Bock, Giarmartino 2006; Driskell et al. 2006; Turner & Müller 2005; Marks, Mathieu & Zaccaro 2001), but no literature can be found regarding coaching models applied by a coaching project manager. Even the project manager in the role of a team coach is considered in few studies only.

In 2010 the researcher attained a qualification in coaching, which enabled a major change in his project management practice. This impact lay foundation for this study and became the researcher’s motivational key driver to conduct this research. He

uses the term management-by-coaching (Whitmore 2002) in this thesis to determine the various forms of brief coaching that have the potential to create a project culture for improved learning and contributing to team empowerment (Kirkman & Rosen 2004).

The researcher is fascinated and curious to explore tools and mechanisms, which impact the interpersonal level of project teams and their contribution to project success. He is motivated to better understand in how far tools of coaching used by the project manager impact project performance, leading him to develop an interest in PMC models.

This study suggests an approach to PMC, which was designed to provide a leadership-style for project managers that can be easily learned and implemented and provides the ability to impact team performance and motivation. With the proposed fifteen-step process the study contributes towards the development of the project management profession. A project manager trained in leadership and coaching techniques can positively influence the team performance of a project team, and thus has a higher impact on project success.

1.3 Aims of the Study

The aim of the research is to explore PMC as leadership-style of the project manager and its contribution to project team performance in German software development projects. The study seeks a more differentiated understanding of the effects of specific elements of the management-by-coaching interventions. It is designed to explore both the effects of an emergent model of coaching on the individual's performance, as well as the interaction within the teams.

To provide possible relevancy to other project managements contexts this study aims to understand the extent to which the project management-by-coaching approach needs to be tailored regarding

- the individual’s or group’s needs (person specific coaching) for helping individuals to construct individual solutions and assist with applying problem solving strategies (Spence & Grant 2007) (see Cycle 1: November 2013 Release, chapter 5.2.4 Major Themes - Set Clear Goals),

- the organisation's needs (non-person specific coaching) focussing on practical and specific business issues, aiming at skill development to achieve certain business outcomes (Clegg *et al*. 2005) (see Cycle 1: November 2013 Release, chapter 5.2.4 Major Themes - Focus On Practical),
- the focus on performance to adopt a pragmatic approach towards client's problems while blanking out exploring personal values and deep-seated issues (Bono *et al.* 2009) (see Cycle 2: February 2014 Release, chapter 5.3.5 Major Themes - Strengthen Trust *and* Fostering Teamwork),
- the focus on individual behaviour change (change-based coaching) to adjust individual behaviour to increase the performance of the team as whole (Kilburg 1996; Bono *et al.* 2009) (see Cycle 1: November 2013 Release, chapter 5.2.2 Cultural Hacking *and* Cycle 3: April 2014 Release, chapter 5.4.3 Setting Up A Coaching Strategy).

The study also aims to:

- Investigate the needs of project teams and how PMC may best be able to help them (see Cycle 3: April 2014 Release, chapter 5.4.3 Setting Up A Coaching Strategy)
- Clarify which aspects are most important and how they can be promoted (see Cycle 3: April 2014 Release, chapter 5.4.5 Action Planning, Developing Options, Staying Motivated)
- Develop a theory of PMC (see Cycle 4: June 2014 Release, chapters 5.5.1 From Group to Team Coaching *and* 5.5.2 Coaching Framework).

1.4 Research Context

The researcher works as an independent project manager and coach on a self-employed basis with a focus on online and e-commerce businesses mainly in the telecommunication and media industry. Throughout his career the researcher experienced three main reasons for companies to contract independent, external project managers:

- to cover resource shortages,
- to reduce risk by filling the knowledge gap,

- to restructure running projects.

The initial plan for the research was to collect data from four to six projects and analyse it using cross-case analysis. The first project was setup in the software department of an insurance company, with a focus on adapting the e-commerce pages to mobile devices using responsive design. The following project was setup in the software department of a telecommunication/media company with a focus on updating the e-commerce pages with latest products and price structures.

In the software department of the telecommunication/media company, the researcher was given the opportunity to conduct four projects within one business organisation. This provided the chance to develop fields of development during one action research cycle and implement and experiment them in the next. The initial research plan was adapted accordingly and the first project was treated as pilot study to justify implementation methods and gain an initial understanding about the most appropriate forms of coaching.

The main study was then conducted in the telecommunication/media company, with the purpose to transfer findings from the foregoing cycle to the next and explore its effects. The utilisation of cross-case analyses was compromised by this change.

1.5 Methodology

This study aims to introduce and investigate an approach to PMC conducted by the researcher himself (Eden & Huxham 1996) in the role of the project manager. The effects of the coaching interventions are studied and analysed continuously to unceasingly tailor the coaching model and derive the exact details of the coaching interventions.

The study is designed as an instrumental, multiple case study. Case study research in itself is not a methodology, but a tool to focus on complexity by separating the subjects of interest from the rest of the world (Thomas 2011a). By looking at the subjects from different varying angles, case studies focus on explaining how and why things happen. A multiple case study design lessens the effect of discreteness of every single case and enhances generalizability (Miles & Huberman 1994; Yin 2009) by shifting focus from the details of one particular case to the underlying

phenomenon to approve that events and processes described in one case study are not wholly idiosyncratic.

An action research (AR) methodology was chosen, as it draws together action and research, allowing both to be achieved simultaneously (Sadowsky 2007). It is substantiated by a critical realism epistemology, which seeks to explain reality. AR acknowledges the subjective influence of perception and cognition, while

- the researcher collaborates with subjects through participation in the role of the project manager,
- is involved in social change within the situation being studied and
- contributes to empowerment of the team members.

Kurt Lewin's (Lewin 1946, 1947) approach to AR emphasises development of theoretical knowledge rather than emancipatory and collaborative elements. In contrast this study follows a participatory action research approach laying its focus on empowerment and emancipation through enhanced awareness of the need for groups to transform their lives and social conditions through co-inquiry (Whyte 1991). Eden & Huxham (1996) advocate that action research should concern itself with theory building, transferability and validity, following those (Easterby-Smith *et al.* 1991; Eden & Huxham 1996; Herr & Anderson 2005) who advocate using a disciplined method which ensures rigour and reliability.

- *Theory building* is incremental and iterative, because it is oriented to some action or cycle of actions that participants are taking (Herr & Anderson 2005), designed for theory development rather than theory testing (McNiff & Whitehead 2011).
- *Transferability* is supported by the comparative character of cross-case analysis (Yin 2009, 2012), laying an emphasis rather on comparison than single cases.
- *Validity* and reliability of results (Charmaz 2006) is gained by ensuring that the findings are based on a structured methodology that must be restorable by interested outsiders. The following six sources of evidence (Yin 2009; Thomas 2011a) will be used in the study: documentation, archival records, interviews, direct observation, participant observation and physical artefacts.

The research conclusions were drawn from the data collected and analysed in three steps.

Step one: immediate analysis using a constant comparative method (Thomas 2009; 2011a) to make the right decisions about the next steps in the project team coaching cycle.

Step two: condense the outcomes of step one and the recordings from the field notes in a case dynamics matrix (Miles & Huberman 1994) to describe, understand and explain what happens in the single case and a coaching effects matrix (Miles & Huberman 1994) to evaluate the outcome of the coaching interventions and the quality of the decision drawn.

Step three: compare the cases in comparative analysis to create a meta-network derived from the individual case networks. The analytical frame is given by the comparison (Thomas 2011a), leading from local causality to clusters of cases sharing important attributes.

1.6 Limitations

The study comprises a broad scope, but is limited in several ways.

The focus is restricted to the impact the PMC practitioner has on individuals, the team as a whole and the relationship between the project manager and the team. It is primarily based on the perceptions of the software development teams and the researcher. While the researcher's notes are included as research data for triangulation purposes (Denzin 1989), the primary sources of data are drawn from interviews and feedback sessions with those being coached only.

The research is not conducted on a statistically significant population, but on the total population of a software development team committed to develop a certain software artefact restricted by scope, time and quality.

The study is targeting at understanding the effects of project management-by-coaching itself, rather than trying to assess specific behaviours changed and adopted by individuals. This significantly limits the study, as it remains unclear what individual action planning strategies are effective. Including behaviour changes of individuals and its effects on the team in the scope of this study would have been

interesting and significant, but would also have made the project unmanageable within the delineation of this doctoral study.

1.7 Literature Review

There is a lack of research into the theoretical basis of project management-by-coaching (PMC). The literature review of this study looks at a range of interrelated areas around the influence of leadership-styles on project management and the impact of coaching as leadership-style on project teams. The coaching model developed for this study focuses on deriving team goals from project goals, developing an action plan and motivate the team members to support the course of action decided. These elements are aspects of the established self-regulatory approach of coaching basing on five steps: Diagnosis, Define Goals, Planning, Implementation and Continuous Follow-Up. They are rooted in the existing coaching literature.

The major foci have been the leadership style of the project manager in relation to project team's performance (Dulewicz & Higgs 2003; Turner & Müller 2005; Slevin & Pinto 1988, 2004; Sumner, Bock & Giarmartino 2006; Berg & Karlsen 2007), leadership-styles related to coaching (Bass 1990; Bass & Steidlmeier 1999; Turner & Müller 2005; Greif 2010), the impact of team coaching (Whitmore 2002; Kirkman *et al.* 2004; Stern 2004; Berg & Karlsen 2007; Hackman & Wageman 2005; Grant 2012) on the project team, and the competence required to conduct team coaching in a project (Waldroop & Butler 1996; Mulec & Roth 2005; Passmore & Gibbes 2007; Kilburg & Levinson 2008; Peltier 2010).

The coaching model of this study is based on three concepts proposed in the coaching literature:

- self-focused attention (Greif 2010), to help individuals develop sensitivity for their own impact on the dynamics of a project team,
- goal clarification (Grant 2006; Perkins 2009), to start to develop a broad vision, and
- transformational leadership (Bass 1990; Bass *et al.* 2003), to create strong identification with team members, beyond just rewarding completion of project activities (Bass 1990; Keegan & den Hartog 2004).

A key element of PMC theory is the role of creating self-focused attention to derive individual and team goals. Consciously setting a goal stimulates a rigorous set of activities and focuses the mind towards reaching the goal. Coaching is viewed as a self-regulatory cycle (Perkins 2009) consisting of cognitive processes of determining what action to take and post-decisional processes to ensure the implementation of the goal (Clegg *et al. 2005*; Mulec & Roth 2005; Berg & Karlsen 2007; Perkins 2009).

Transformational leadership produces organisational commitment amongst followers (Dulewicz & Higgs 2003), who identify with the charismatic leaders' ability to "broaden and elevate the interests of their employees" (Bass 1990: 21). He or she tends to focus on the best in people (Bass & Steidlmeier 1999), while generating awareness and acceptance of the purposes and mission of the group (Bass 1990). For successful coaching face-to-face contact is essential (Wasylyshyn 2003), but it can be loose and informal (Whitmore 2002) and does not necessarily require to be perceived as coaching by the coachee.

1.8 Research Question

The research question evolved during the literature review from gaps in the literature. Project management-by-coaching is lacking a theoretical basis and no coaching model described, considers the project manager in the role of a team coach. This research studies the consequences of PMC as leadership-style to the project teams, utilising an exploratory action research and case study methodology.

The study hypothesises that team coaching can be implemented in a project organisation by defining agreed team goals along the given project goals. The study explores coaching tools that can be adapted to implement PMC. It is guided by the question:

> *How does project management-by-coaching as leadership-style of the project manager contribute to project team performance in German software development projects?*

In four sequential case studies the study explores the effects on the team when the project manager conducts a PMC approach. The research aims are to

- explore the effects of PMC on project team development and interaction

- explore the effects of PMC on team member's satisfaction
- explore the effects of PMC on team member's collaboration and efficiency
- develop a theory of PMC based on the exploration

CHAPTER 2: Literature Review

A comprehensive review of the literature revealed a variety of different models and approaches to coaching and several proprietary models with heavy emphasis on executive coaching and leadership development. Disputable topics were coach characteristics and skills, coaching techniques and tools, determinants of successful coaching outcomes and professional considerations.

Greif (2010) determines that success of coaching interventions today cannot be fully explained by scientifically defined factors or qualitative analyses. And coaching as leadership-style in project management has been target to only little research. Leadership-styles are not considered in the syllabuses of the three largest project management organisations (PMI 2013; TSO 2009; GPM 2011).

This study explores coaching as leadership-style in project management - project management-by-coaching (PMC). Several fields in the literature were identified to be synthesised to contribute to a PMC approach. The major foci of the literature review had been

- Project leadership (Dulewicz & Higgs 2003; Turner & Müller 2005; Slevin & Pinto 1988, 2004; Sumner, Bock & Giarmartino 2006; Berg & Karlsen 2007; Bass 1990; Bass *et al.* 2003; Cerni, Curtis & Colmar 2010; Dulewicz & Higgs 2003; Slevin & Pinto 2004; Goleman, Boyatzio & McKee 2002; Nixon, Harrington & Parker 2012),
- Coaching as leadership-style (Bass 1990; Bass & Steidlmeier 1999; Turner & Müller 2005; Greif 2010; Kilburg 1996; Whitmore 2002; Clegg *et al.* 2005; Heslin, Vandewalle & Latham 2006; Spence & Grant 2007; Levenson 2009; McGill 2010; Berg & Karlsen 2007; Wasylyshyn 2003; Mulec & Roth 2005; Kilburg & Levinson 2008; Kampa-Kokesch & Anderson 2001; Wageman 2001), and
- Management-by-coaching (Whitmore 2002; Kirkman *et al.* 2004; Stern 2004; Berg & Karlsen 2007; Hackman & Wageman 2005; Grant 2012; Waldroop & Butler 1996; Mulec & Roth 2005; Passmore & Gibbes 2007; Kilburg & Levinson 2008; Peltier 2010; Kilburg 1996; Wasylyshyn 2003)

The literature review was conducted to examine the nature and definition of coaching within the context of the business coaching literature to clarify in developing a theory of PMC.

2.1 Project Leadership

To review the literature that may assist in developing a theory of PMC, firstly the nature and definition of project leadership within the context of the general project management literature is examined.

The literature determines that

a. project management contributes to project success (Westerveld 2003; Slevin & Pinto 2004; Turner & Müller 2007; Berg & Karlsen 2007; Geoghegan & Dulewicz 2008; Kerzner 2009),

b. project performance correlates with the effectiveness of the leader (Dulewicz & Higgs 2003; Prabhakar 2005; Geoghegan & Dulewicz 2008), and

c. leadership style of the project manager is a critical success factor for project success (Turner 1999; Geoghegan & Dulewicz 2008; Berg & Karlsen 2007; Sumner, Bock & Giarmartino 2006; Nixon, Harrington & Parker 2012).

Classical Project Management

Despite the ambiguous utilisation of project success by referring to it in different contexts (PMI 2013), no universal definition of project success exists. Kerzner (2009) defines project success as

> *"having achieved the project objectives within time, within cost, at the desired performance/technology level, while utilising the assigned resources effectively and efficiently and (..) being accepted by the customer" (Kerzner 2009: 3).*

Kerzner's (2009) focus of project success lies on processes and the project manager and "the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements" (PMI 2013: 5). This study refers to this peculiar form of project management as classical project management and defines it by following Turner & Müller (2003) as

better control and use of existing resources in a "temporary organization to which resources are assigned to undertake a unique, novel and transient endeavour managing the inherent uncertainty and need for integration in order to deliver beneficial objectives of change" (Turner & Müller 2003: 7).

Non-Classical Project Management

Broadening classical project management by including considerations of leadership and people management, enables shifting the focus from project processes to project performance (Slevin & Pinto 2004; Berg & Karlsen 2007; Geoghegan & Dulewicz 2008; Anantatmula 2010). In terms of this study this will be referred to as non-classical project management.

According to Duygulu & Ciraklar (2008) project leadership as function of non-classical project management is the ability to influence the behaviour of individuals and empower teams regarding performance (Kirkman *et al.* 2004). They refer to leadership as concerning the nature of superior and subordinate relationship. Bass & Steidlmeier (1999) raise moral questions concerning both the character of the leader as well as the legitimacy of their programs. "Self-serving leaders could result in deception and exploitation of followers" (Bass & Steidlmeier 1999:182). They argue that leadership must be grounded in moral foundations. For this reason, Thamhain (2004) calls project management "an art, a science, and a great challenge that requires carefully developed skills in leadership, administration, organisation and technical expertise" (Thamhain 2004: 45), to manage "an on going choreography of various tasks and resources" (Kappelman, McKeeman & Zhang 2006: 35).

Project leadership in contrast to classical project management requires besides managerial competence to shape interpersonal relationships, communications, collaboration, and cooperation with stakeholders of the project (Dulewicz & Higgs 2003), leadership skills, knowledge and morally grounded personal characteristics.

2.1.1 Team Empowerment

While classical project management expects the project manager to formulate performance expectations (Marks, Mathieu & Zaccaro 2001; Thamhain 2004) and provide measurement (Wageman 2001; Westerveld 2003; Driskell *et al.* 2006), non-

classical project management shifts project assessment and evaluation toward the stakeholders who receive, use, or review the team's output (Duygulu & Ciraklar 2008). In non-classical project management, the stakeholders provide evaluation criteria for project success.

A majority of authors (Wageman 2001; Marks, Mathieu and Zaccaro 2001; Kirkman *et al.* 2004; Westerveld 2003; Thamhain 2004; Driskell *et al.* 2006; Duygulu & Ciraklar 2008) rate teamwork as crucial to project performance. When stakeholders provide success criteria the project manager has to encompass project management success with respect to managing stakeholder's expectations and teamwork. Kirkman *et al.* (2004) suggest team empowerment to foster teamwork.

According to Yukl (1999) team empowerment refers to power sharing instead of taking actions to increase followers' behaviour. He strictly distinguishes between inspiring teams, which according to him refers to "infusing the work with meaning" (Yukl 1999: 290), developing teams to enhance followers' skills and self-confidence, and empowering in the sense of "providing significant voice and discretion to followers" (Yukl 1999: 290). For Driskell *et al.* (2006) and others (Kirkman & Rosen 2004; Kirkman *et al.* 2004) team empowerment is more than only sharing power. According to them an empowered team is inspired, skilled and motivated, and has the power to make decisions basing on the team's competence. This study follows those who understand team empowerment as a balanced mix of motivation, skill and competence.

Driskell *et al.* (2006) summarise behaviours to foster teamwork as directing, coordinating and assigning the task activities of and motivating other team members. The effective project leader who provides those behaviours, is according to Thamhain (2004) a social architect who sees the relationship between the organisation and the leader as a potentially dynamic one (Dulewicz & Higgs 2003). Considering projects in terms of non-classical project management requires considering team dynamics and interactions. Team work is a complex phenomenon, which fosters the project manager to provide a climate of active participation and minimal dysfunctional conflict at all organisational levels in the planning, formation, and execution of projects (Thamhain 2004; Kirkman *et al.* 2004). Teams that lack empowerment and rarely meet face-to-face may become passive and likely to rely on

their leaders for direction. In classical project management the team appears to be more dependent of the project manager's tools, techniques and guidance.

This assumption is supported by Kirkman & Rosen (2004), who define team empowerment as increased task motivation effectuated by the team's collective and positive assessment of their relationships to tasks within an organisational context. A team can only be expected as strong as the people who comprise it and how they commit to the tasks. The influence of the individual on the whole team's performance is limited, but commitment and collaboration to work depend on individual talents and competences (Marks, Mathieu & Zaccaro 2001). While Ba Banutu (2012) declares individuality as counter productive for the team, Marks, Mathieu & Zaccaro (2001) find it influential for the whole team's performance. This apparent contradiction defines the role of the non-classical project manager, who primarily fosters team performance by balancing individuality and collectivity (Whitmore 2002), rather than providing tools and guidance.

Work Teams and Project Teams

Generally, teams are characterised by members working interdependently toward collective goals and by a period of stable membership (Hackman 2002). They are a system utilising resources, maintaining internal processes and producing specific outputs (Mickan & Rodger 2000). A more specific team definition basing on the team's purposes is not provided in the literature.

In terms of this study a distinction between work teams and project teams is required, derived from the literature.

Work Teams

According to Hackman & Wageman (2005: 272) work teams have tasks to perform, challenged to "manage relationships with other individuals or groups in some larger social system" as a collective. They are composed to achieve efficiency in their routines (Westerveld 2003), in contrast to projects in permanent organisations. In the sense of this work, work teams are defined as:

> *a contingent of two or more people who interact and positively influence each other and coordinate their work (Ba Banutu 2012) committed to a common purpose, goals and working approach for which they hold themselves*

mutually accountable (Nader, Shamsuddin & Zahari 2009) for the success of the organisation (Ba Banutu 2012).

Project Teams

A project team was built to make up a temporary organisation and to share responsibility for a shared outcome and detailed tasks under restricted time and budget (Banham 2009). Temporary organisations consist of "teams to share responsibility for a shared outcome and detailed tasks under restricted time and budget" (Banham 2009: 31). It comprises of people either from within the same organisation or from different organisations (Horner-Reich & Sauer 2010). In contrast to a permanent organisation project teams are more specifically aimed at effectiveness in the meaning of producing a certain project goal (Westerveld 2003).

Components of Project Team Performance

It is widely agreed in the literature (Duygulu & Ciraklar 2008; Wageman 2001; Hackman & Wageman 2005; Mickan & Rodger 2000) that team effectiveness contributes to team performance. While there are corresponding characteristics of effective teams like goal commitment (Duygulu & Ciraklar 2008), effective team interaction and collaboration (Wheeler, Hihn & Wilkinson 2002), and performance in complex and dynamic environments (Krishna 2011), the factors contributing to team effectiveness remain inconsistent.

For Duygulu & Ciraklar (2008) factors contributing to team effectiveness are mainly provided by the leader. They concentrate on managerial factors like team composition, team stability, team size, and member involvement. Wageman (2001) refers to skills mainly provided by the team. She concentrates on team factors like task performance, group process and individual satisfaction, where the latter is vaguely referred to as a more satisfying than frustrating group experience.

Mickan & Rodger (2000) identified teamwork as key to delivering healthcare and conducted a literature review to gain a better understanding of how teams function effectively in an environment with clear scope, limited resources and fixed time. According to them the literature abounds with empirical and anecdotal recommendations for creating and consensus about the characteristics of effective teams. Their research into team effectiveness summarises and evaluates

characteristics that create and maintain teams in healthcare environments. Mickan & Rodger (2000) conclude in their literature review that team effectiveness consists of both managerial factors provided by the leader and team skills provided by team members. They describe the superordinate characteristics of team effectiveness contributing to team performance in terms of the structure of the organisation, individual contribution to teams, and team processes that maintain a functioning team (Figure 2-1).

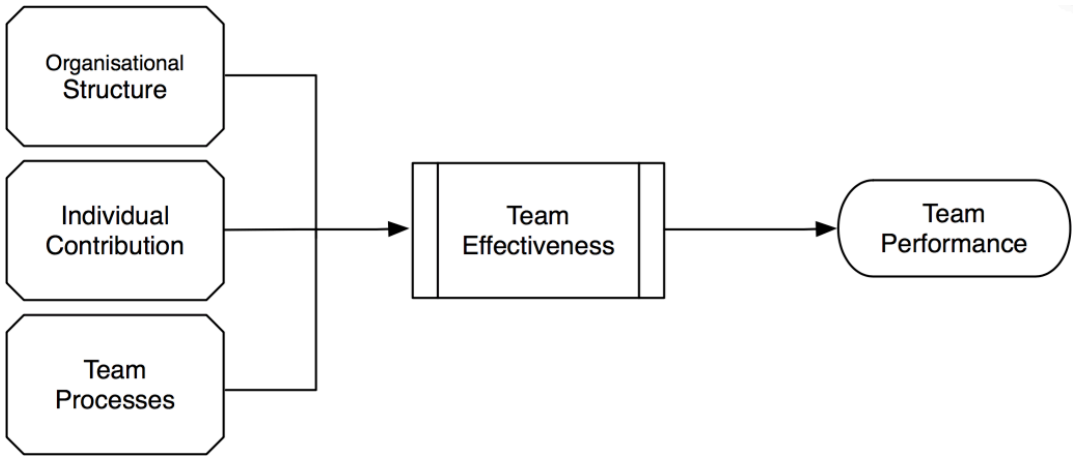

Figure 2-1: Components of Effective Teamwork (based on Mickan & Rodger 2000)

By considering the environment, as well as individual and group contribution they respect the organisation based on managerial factors and the social environment consisting of team interactions and interactions between individuals, the team and the leader. This consolidation is supported by several authors (Marks, Mathieu & Zaccaro 2001; Wheeler, Hihn & Wilkinson 2002; Dionne *et al.* 2002). Mickan & Rodger (2000) identified factors of effective teamwork in the organisational, individual and team dimension (Table 2-1). The importance of the factors varies depending on the maturity and state of the team, but effective teams balance them over time (Hackman & Wageman 2005).

Organisational Structure	Individual Contribution	Team Processes
Clear Goals	Commitment	Communication
Results-drive	Trust	Decision-making
Clear Mission	Self-knowledge	Cohesion
Suitable Leadership	Flexibility	Cooperation

Table 2-1: Factors of effective Teamwork (Mickan & Rodger 2000)

Belbin (2010) defines nine team roles in her work, which depend on the balancing of the factors identified. Individuals occupy more than one preferred team role basing on clusters of behaviour. She categorises the team roles in action, social, and thinking roles. The specific combination and interaction of individuals shape and form the team.

Organisational Structure

Mickan & Rodger (2000) subsume four structural characteristics under *Organisational Structure*. The organisation is based on managerial factors mainly provided by the leader.

Clear Goals

Goals are critical success factors for the project that describe the value generated by project deliverables and products (Banham 2009; Kerzner 2009). Clear and measurable team goals are derived from project goals (PMI 2013), with participation of project team members in setting and prioritising them. Concise, challenging, and achievable goals provoke better understanding of task requirements and better motivation in achieving them (Kirkman & Rosen 1999).

Results-Driven Organisation

Organisations need to clearly define their expectations and mechanisms of accountability for all teams and transform shared values into behavioural norms (Mickan & Rodger 2000). A results-driven organisation concentrates on meeting objectives and holds performance to be more important than procedures, and concerns about the quality of interaction between team members, with the leader providing the required structures.

Clear Mission

Organisations need to have a clear vision, which encompass their underlying values. They are pervaded either explicitly through mission statements or by particular assumptions or behaviour (Mickan & Rodger 2000).

Suitable Leadership

Dynamic team tasks and complexity, are typical characteristics of projects. The more complex and dynamic the team's tasks are, the more focus needs to be maintained on

strategic focus to support the project's goals, facilitate goal setting, and evaluate achievements (Mickan & Rodger 2000).

Individual Contribution

Individual Contribution consists of commitment, trust, self-awareness & competence and flexibility (Marks, Mathieu & Zaccaro 2001; Dionne *et al.* 2002).

Commitment

Commitment to a set of unified team goals and values provides direction and motivation for individual members, and enables individuals to thrive amongst challenges and pressures that may otherwise be perceived as stressful (Mickan & Rodger 2000). The building blocks of commitment are self-awareness and the ability to trust others (Dionne *et al.* 2002).

Trust

Trust is the stabilising factor when building commitment. Trust is being built up across team members through developing confidence in each other's competence and reliability (Mickan & Rodger 2000). Trust is the premise for individuals to share knowledge and skills.

Self-awareness & Competence

Self-awareness and competence are the building blocks of trust, affected by individual's personality and position. Self-Awareness and independence are the premise for satisfaction, productiveness and respectfulness of others (Mickan & Rodger 2000).

Flexibility

Flexibility is the ability to maintain an open attitude, accommodate different personal values and be receptive to the ideas of others (Mickan & Rodger 2000).

Team Processes

Team Processes as positive group experiences are fanned out by Mickan & Rodger (2000) as communication, decision-making, cohesion and cooperation.

Communication

Open and easy communication within a team is critical for goal accomplishment and completion of regular, daily team activities (Dionne *et al. 2002*). Communication involves an observable interchange of information with clear defined responsibilities and appropriate delegation. A prediction for positive team performance is an open and prompt team communication (Dionne *et al.* 2002).

Decision-making

The need for different types of decision-making processes varies, depending on the team's maturity (Mickan & Rodger 2000). Team members' knowledge and skills contribute to shared information and more legitimate decisions, affecting a possible decrease of individual autonomy (Kirkman & Rosen 1999).

Cohesion

The team members' personal attraction to the team and the tasks is acknowledged as team cohesion. It refers to the desire to remain with the team for future tasks (Mickan & Rodger 2000). Besides setting-up small team sizes, similar attitudes and physical proximity (Mickan & Rodger 2000), cohesion can be fostered by accurate performance feedback, success in adversity and good communication.

Cooperation

Cooperation of team members is characterised by the ability to solute conflicts in a productive way, and to influence team performance positively (Dionne et al 2002). Destructive team conflict often has an interpersonal basis in work role or organisational factors. Conflicts are destructive when tension within or between groups is such that it impedes members from thinking.

Empowering team leadership refers to team empowerment (Kirkman et al. 2004) in the dimensions of interpersonal relationships, communications, collaboration, and cooperation. To evaluate suitable leadership-styles for project management, a set of team parameters affecting team empowerment was identified (Turner 1999):

- team decision-making,
- team decision-taking and
- team flexibility.

Kirkman & Rosen (2004) refer to those parameters as *potency*, *meaningfulness*, and *autonomy*. They argue that the leadership-style applied to the project team is required to increase the belief that the teams' tasks make significant organisational contributions. And add a fourth parameter:

- impact.

Team empowerment is a construct of the team parameters team decision-making (*potency)*, team decision-taking *(meaningfulness)*, and flexibility *(autonomy)*, and *impact*. The leadership-styles affecting team empowerment at different levels according to Turner (1999) are: *Laissez-faire*, *Democratic*, *Autocratic*, and *Bureaucratic*. Turner (1999) assessed the influence of the leadership-styles on the team parameters team in Table 2-2. A lower emphasis of one or more of the parameters can be compensated with a higher emphasis of another.

Parameter	Laissez-faire	Democratic	Autocratic	Bureaucratic
Team Decision-Making	High	High	Low	Low
Team Decision-Taking	High	Low	Low	Low
Flexibility	High	High	High	Low

Table 2-2: Influence of Leadership-Styles (Turner 1999)

The fourth parameter *impact* depends on the organisational contribution the project makes and often gives business justification for the project. It is therefore independent from the leadership-style provided.

Laissez-faire leadership is described as the most extreme form of passive leadership or even non-leadership (Bass 1990a), and indicates the *absence of leadership*. The laissez-faire leader avoids decision-making and supervisory responsibility. On the opposite the bureaucratic leader is restrictive by formulating processes and provides only limited flexibility and freedom regarding decision-making and decision-taking.

2.1.2 Leadership Schools

To evaluate the combination of skills and knowledge coupled with personal characteristics and capabilities required to define a leader, a total of six major schools of leadership adaptable for project management have evolved in the past seventy years. The early theories tend to focus upon the characteristics and behaviours of successful leaders. Later theories, beginning with the contingency

school and more distinct in the visionary school, begin to consider the role of followers and the contextual nature of leadership.

The *Trait School* assumes that effective leaders share common inherent traits (Turner & Müller 2005). It was thought that critical leadership traits could be isolated, and people with such traits could then be recruited. But as no universal list of traits that all successful leaders have in common could be identified (Turner 1999), further theory development led to the position that developing behaviour makes successful leaders. The *Behaviour School* emerged in 1940's and assumes that effective leaders adopt certain behaviours by learning and development (Turner & Müller 2005). But without a consistent approach describing a unique leadership style for all situations, the leader has to deal with environmental challenges by adapting behaviour situational (Turner & Müller 2005), leading to the *Contingency* or *Situational School*, which suggests that what makes an effective leader would depend on the particular situation (House 1972). This more system-based approach expresses the idea that the leader must help the team find the path to their goals and help them in that process (House 1972). Effective leadership arises from the combination of circumstances regarding the personality and capabilities of the leader, influencing members' attitude and work, setting up agreements and contracts to achieve specific work objectives and to reward individuals upon successful completion of tasks (Bass & Avolio 2004). The contingency approach considers interaction alone, and proposes effective leadership skills already available.

Like no unique list of traits successful leaders have in common, and no unique leadership-style fitting all situations was found, interaction alone does not sufficiently explain leadership (Geoghegan & Dulewicz 2008). As all aforementioned approaches fall short serving as a general theory of leadership the emphasis shifts from developing leaders to developing organisations with a more collective responsibility for leadership.

Visionary School

The *Visionary School* enhanced the concept of leading by stimulating to leading through permanent change (Turner & Müller 2005). It was popular during the 1980s and 1990s.

Bass (1990) identified three leadership behaviours, which have a major impact on the ability to change. He refers to them as transactional, transformational and laissez-faire leadership (Table 2-3).

Laissez-faire Leadership-Style

Laissez-faire leadership is described as the most extreme form of passive leadership or even non-leadership (Bass 1990a), and indicates the *absence of leadership*. The laissez-faire leader avoids decision-making and supervisory responsibility, and is inactive rather than reactive or proactive. Laissez-faire leadership grants the grandest degree of freedom to the project team as no restrictions are formulated or enforced. It neither provides support in determining the route of action to be taken, nor does it provide guidance or direction. For that reason, laissez-faire leadership cannot be considered a leadership-style suitable for project management.

Leadership-Style	Attributes
Transactional	Emphasises contingent rewards, rewarding followers for meeting performance targets Management-by-exception, taking action when tasks are not going as planned Suitable for situations of low complexity
Transformational	Developing a vision, engendering pride, respect and trust Provides inspiration, motivating by creating high expectations and modelling appropriate behaviours Gives consideration to the individual, paying personal attention to followers and giving them respect and personality Provides intellectual stimulation, challenging followers with new ideas and approaches Suitable for situations of high complexity
Laissez-Faire	Avoids making decisions Abdicate responsibility No use of authority

Table 2-3: Leadership-Styles (Bass 1990)

Transactional Leadership-Style

Transactional leadership is defined as a process of leader-subordinate exchange (Yukl 1999). Transactional leaders focus on rewarding followers for meeting performance targets. Transactional leadership theories are founded on the idea that the relationship between leader and follower is based on transactions, where followers receive direct rewards for their work (Bass 1990; Bass & Steidlmeier 1999). The leader defines performance criteria, assessed and rewarded with material and immaterial benefits. Undesirable behaviour is sanctioned by critique (Bass & Avolio *et al.* 2003). Motivation in transactional leadership models is gained by goal clarification, tasks and delegation of responsibility. If the follower is not motivated, lacks direction and satisfaction, the leader takes action on his or her behaviour by compensating for the deficiencies. House's (1972) path-goal theory is an example for

a transactional leadership theory focusing on rewarding individuals upon successful completion of tasks (Bass & Avolio 2011).

The main concern regarding transactional leadership is that transactional leaders engage their followers in a relationship of mutual dependence. The transactional leader is necessarily influential because following the leader's will is beneficial for the follower (Bass & Avolio *et al.* 2003; Bass & Avolio 2011). According to Covey (1992) transactional leadership is preoccupied with power and position and "supports structures and systems that reinforce the bottom line, maximise efficiency, and guarantee short-term profits" (Covey 1992: 15). In contrast to team empowerment, demanding a climate of active participation, the transactional leader fosters a climate of obedience and compliance by focussing on possible errors by performing active or passive management-by-exception (Bass 1990). Yukl (1999) refers to transactional leadership behaviours as "mostly ineffective" (Yukl 1999: 289), but doubts that active management-by-exception is necessarily transactional. Judge & Piccolo (2004) describe its difference as lying in the timing of the leader's intervention. The active leader takes corrective actions before a certain behaviour creates serious difficulties, and can facilitate transformational leadership as well as transactional leadership. "The theoretical rationale for including active management by exception as part of transactional leadership is not clearly explained and is not evident" (Yukl 1999: 289).

Transformational Leadership-Style

Transformational leaders focus on developing a shared vision (Nixon, Harrington & Parker 2012), respect and trust, providing inspiration, motivation and modelling behaviours (Bass 1990). According to Bass (1990) and Bass *et al.* (2003) transformational leadership behaviours result in higher levels of group and organisational performance, and produce significantly greater organisational commitment amongst followers (Dulewicz & Higgs 2003) beyond that accounted for transactional behaviour. Cerni, Curtis & Colmar (2010) and Grant (2012) substantiate a strong correlation between increased motivation, job satisfaction, and commitment and transformational leadership. Transformational leadership focuses on behaviour change of the followers and involves the building of relationships based on personal, emotional, and inspirational exchanges. Its goal is developing followers to their fullest potential (Covey 1992). Transformational leaders mobilise

commitment and transcendent performance of both, the individual and the project as a whole through attained charisma and great influence (Bass 1990), and generated awareness and acceptance of the purposes and mission of the group (Bass 1990). Bass & Steidlmeier (1999) propose a list of characteristics of transformational leadership in table 2-4.

Yukl (1999) questions transformational leadership as full range leadership theory (Bass & Riggio 2006), because the theory does not identify any situation where transformational leadership is disadvantageous. According to him no negative outcomes for followers or organisations have been researched systematically, although "several writers" (Yukl 1999: 292) proposed detrimental consequences of transformational leadership for organisations. Furthermore, he states that organisational processes receive insufficient attention in most theories to transformational leadership. But still he makes totally clear that there is considerable evidence that transformational leadership is effective.

Characteristic	Explanation
Idealised Influence	Leader provides vision and sense of mission, and whether is manipulative or not
Inspirational Motivation	Leader communicates high expectations, providing for true empowerment and self-actualisation of followers or not
Intellectual Stimulation	Leader promotes intelligence, rationality, and careful problem solving.
Individualised Consideration	Leader gives personal attention, treats each employee individually, coaches, advises and respects follower's unique dignity and interests.

Table 2-4: Transformational Leadership (Bass & Steidlmeier 1999)

Bass (1990: 21) and Keegan & Den Hartog (2004: 610) define transformational leadership by

> *"the ability of the leader to create a shared vision and a strong identification with team members that is based on more than just rewarding completion of project activities."*

The influence of the transformational leader on the followers has been subject to critique. Yukl (1999) criticises the lack of qualitative and quantitative studies relating to "arousal of motives or emotions, increased self-efficacy or optimism, modification of beliefs about reward contingencies and increased task commitment" (Yukl 1999:

287). According to Bryman (2004) qualitative research studies which try to underpin transformational leadership are flawed in terms of understanding how leadership was systemised. According to him the routinisation of "charisma" is poorly understood (Bryman 2004: 754).

The major critique Yukl (1999) and Bryman (2004) and other critics (Judge & Piccolo 2004) share on transformational leadership is related to why transformational leadership works. They focus on the gap that the success of transformational leadership has not been fully explained by scientifically defined factors or qualitative analyses. While neither Yukl (1999) nor Bryman (2004) raise concern regarding the leadership-style's impact, Judge & Piccolo (2004) doubt the impact of transformational leadership alone. According to them transformational leadership complements transactional leadership, and suggest that without the foundation of transactional leadership, transformational effects may not be possible. They complain that research often suggests that "transformational leadership adds beyond transactional leadership, but not vice versa" (Judge & Piccolo 2004: 756).

Research conducted focussing on impact rather than explanation (Goleman, Boyatzio & McKee 2002; Dulewicz & Higgs 2003) showed that trust was viewed as being the key ingredient which led followers to produce more qualitative work. It revealed clear correlation between transformational leadership and emotional intelligence (Bass & Riggio 2006). In contrast, active and passive management-by-exception, and laissez-faire, were not correlated to emotional intelligence.

Emotional Intelligence School

The *Emotional Intelligence School* refers to emotional intelligence as "the competencies that constitute self-awareness, self-management, social awareness, and social skills at appropriate times and ways in sufficient frequency to be effective" (Boyatzis, Goleman & Rhee 2000: 3). According to them emotional intelligence "is a convenient phrase with which to focus attention on human talent" (Boyatzis, Goleman & Rhee 2000: 2).

Goleman, Boyatzio & McKee (2002) and Dulewicz & Higgs (2003) show a clear correlation between emotional intelligence and leadership-style of managers and the performance of their organisations (Turner & Müller 2005). Nixon, Harrington and

Parker (2012) and others (Bluckert 2005; Dagley 2010; Greif 2010) state that a poor level of emotional intelligence can directly contribute to poor leadership. According to them it has greater impact on leadership success and performance of the team, than intellectual capability. It is popular since the late 1990s.

The competences building emotional intelligence are according to Peltier (2010) learned capabilities, which either refer to personal or social capabilities (Boyatzis, Goleman & Rhee 2000; Turner & Müller 2005). Peltier (2010) proposes an emotional competence framework by assembling personal and social capabilities (Table 2-5).

	Personal Competence	**Social Competence**
	Self-Awareness	*Social-Awareness*
Recognition	Emotional self-awareness Accurate self-assessment Self-confidence	Empathy Service orientation Organisational awareness
	Self-Management	*Relationship-Management*
Regulation	Emotional self-control Trustworthiness Conscientiousness Adaptability Achievement drive Initiative	Developing others Influence Communication Conflict management Visionary leadership Catalysing change Building bonds Teamwork & ollaboration

Table 2-5: Emotional Competence Framework (Peltier 2010)

Nixon, Harrington & Parker (2012) characterise the emotional intelligent professional as inheriting self-awareness, self-regulation, motivation, empathy, and social skills, that encourage and contribute to successful outcomes (Table 2-6).

Component	Definition	Hallmarks
Self-Awareness	Ability to recognise and understand moods, emotions, and drives and their effect on others	• Self-confidence • Directs humour at self • Realistic self-assessment
Self-Regulation	Ability to control or redirect disruptive impulses and moods Tendency to suspend judgement and think before acting	• Trustworthy • Willing to change • Comfortable with ambiguity
Motivation	Exhibiting a passion to work for reasons outside money or status Lacking a drive to pursue goals with energy and persistence	• Drive to achieve • Optimistic • Organisational commitment
Empathy	Ability to understand the emotional markup of others Skill in treating others according to their emotional reactions	• Build or retain talent • Cross-cultural sensitivity • Service to clients and customers
Social Skill	Capability of managing relationships and building networks Ability to find common ground and build a relationship	• BEffective in leading change • Believable or persuasive • Succeeds in building and leading teams

Table 2-6: The Emotional Intelligent (based on Nixon, Harrington & Parker 2012)

Turner & Müller (2005) identified the emotional competencies in leadership as significant contributors to project performance, while purely intellectual competencies showed up even being negatively correlated to it. Bass & Riggio (2006) and others (Boyatzis, Goleman & Rhee 2000; Turner & Müller 2005; Dulewicz & Higgs 2003) agree that the leadership-style associated with emotional intelligence is transformational leadership.

According to Bass & Avolio (2004) managers with different moral-reasoning levels exhibited different levels of transformational and transactional leadership behaviours. Managers scoring in the highest group of moral-reasoning distribution exhibited more transformational leadership behaviours than leaders scoring in the lowest group. No relationship was reported between moral-reasoning group and transactional leadership behaviours. According to them research indicated that emotional intelligence is associated with the three aspects of transformational

leadership of idealised influence, inspirational motivation, and individualised consideration.

The main concern raised about emotional intelligence theories and models refers to how it can be measured than its efficacy. Conte (2005) states that based on empirical research to date superiority of emotional intelligence over predictions and decisions founded on "general mental ability" (Conte 2005: 437) is unfounded and unsubstantiated. He criticises that emotional intelligence development can only be fostered with the use of valid and rigorous research designs. Boyatzis, Goleman & Rhee (2000) predict one of the major benefits of the conceptualisation of emotional intelligence is the potential for "establishing causal connections between the unconscious motive and trait level of personality to the social role and self-image level to the behavioral level, as evident in competencies" (Boyatzis, Goleman & Rhee 2000: 15). Attempts to make the links for each competency failed (Dulewicz & Higgs 2003).

Competency School

The *Competency School* assumes that effective leaders share common competencies and proposes that the combination of competencies leads to different leadership-styles. It is popular since the late 1990s.

Competencies can be acquired (Nixon, Harrington & Parker 2012), developed by learning (Peltier 2010) and attached by training (Turner & Müller 2005; Peltier 2010). Different combinations of competencies lead to different styles of leadership (Turner & Müller 2005), producing transactional or transformational leaders (Bass & Steidlmeier 1999).

Despite of the plausibility of this rational, a universal list of competencies producing leaders cannot be found in the literature. The most comprehensive approach was created by Dulewicz & Higgs (2003). They suggest three competence categories for the 15 leadership competencies they identified: emotional (EQ), intellectual (IQ), and managerial (MQ) competences. They assume basing on their results that the leadership-style of the project manager can be determined by surveying the competences and evaluating the measured combinations (Table 2-7).

Group	Competency	Goal	Involving	Engaging
Intellectual (IQ)	1. Critical analysis and judgement	High	Medium	Medium
	2. Vision and Imagination	High	High	Medium
	3. Strategic Perspective	High	Medium	Medium
Managerial (MQ)	4. Engaging Communication	Medium	Medium	High
	5. Managing Resources	High	Medium	Low
	6. Empowering	Low	Medium	High
	7. Developing	Medium	Medium	High
	8. Achieving	High	Medium	Medium
Emotional (EQ)	9. Self-awareness	Medium	High	High
	10. Emotional Resilience	High	High	High
	11. Motivation	High	High	High
	12. Sensitivity	Medium	Medium	High
	13. Influence	Medium	High	High
	14. Intuitiveness	Medium	Medium	High
	15. Conscientiousness	High	High	High

Table 2-7: Fifteen leadership competencies (Dulewicz & Higgs 2003)

Besides the weakness of the competency school that no universal list of competencies was formulated, Bolden (2006) furthermore criticised it for its disconnection between acquisition and usage of competences. According to him acquiring a competency does not necessarily guarantee its use, while the absence of a competency does not make incompetent. He argues that overdone competencies may lead to failure. An excessively high level of team orientation may turn into indecisiveness, or global vision to lack of local focus. He summarises that contrary to the assumption of most leadership competency frameworks, there is neither a linear nor causal relationship between competencies and job performance.

2.1.3 Empowering Leadership

While classical project management refers to managerial functions regarding better control and use of existing resources (PMI 2013; TSO 2009), project leadership is closely related to empowering teams (Kirkman *et al.* 2004). To evaluate suitable leadership-styles for project management Turner (1999) and Kirkman & Rosen (2004) identified a set of team parameters affecting team empowerment.

Kirkman & Rosen (2004) refer to those parameters as *potency*, *meaningfulness*, and *autonomy*, while Turner (1999) refers to the parameters less abstractly as *team decision-making*, *team decision-taking* and *team flexibility*. According to them team empowerment is a construct of the team parameters team decision-making (*potency)*, team decision-taking *(meaningfulness)*, and flexibility *(autonomy).*

The leadership-styles affecting team empowerment at different levels according to Turner (1999) are: *Laissez-faire*, *Democratic*, *Autocratic*, and *Bureaucratic*. While the laissez-faire leader avoids decision-making and supervisory responsibility, the bureaucratic leader is restrictive by formulating processes and provides only limited flexibility and freedom regarding decision-making and decision-taking. The bureaucratic leader remains distanced and rather focuses on defining and following processes than building relationships with subordinates. Autocratic leadership is marked with the leader having complete authority, and the followers obeying the instructions of the leader without questioning and without receiving an explanation or rationale for such instructions. They involve themselves in detailed day-to-day activities, and rarely delegate or empower subordinates. Democratic leadership involves the team in decision-making processes and tries to gain commitment regarding the goals and objectives.

Turner (1999) assessed the influence of the leadership-styles on the team parameters team in table 2-8. A lower emphasis of one or more of the parameters can be compensated with a higher emphasis of another.

Parameter	Laissez-faire	Democratic	Autocratic	Bureaucratic
Team Decision-Making	High	High	Low	Low
Team Decision-Taking	High	Low	Low	Low
Flexibility	High	High	High	Low

Table 2-8: Influence of Leadership-Styles (Turner 1999)

Kirkman & Rosen (2004) argue that the leadership-style applied to the project team is required to increase the belief that the teams' tasks make significant organisational contributions. But independently from the leadership-style a project has a certain organisational *impact*. Impact refers to the organisational contribution the project makes and provides business justification for the project. The project's impact is independent from the leadership-style provided. But the leadership-style provided needs to support the project to make the expected organisational contribution.

2.2 Coaching as Leadership-Style

Coaching as leadership-style in project management has been target to only little research. Coaching as an emerging discipline struggles with problems of definition, caused by a lack of entry barriers to the profession (Peltier 2010). The diversity of

professional backgrounds and approaches cause frustration in organisations, as they struggle with how to select a competent coach (Bono *et al.* 2009). Berg & Karlsen (2007) are one of the few (Bono *et al.* 2009) who determine coaching a method to help project managers achieve improved results by focusing on the development of behaviour and emotional patterns.

Performance-based coaching

A competent coach aims at "making the most of an organisation's valuable resources" (Waldroop & Butler 1996: 1), and furthermore develops people so that they produce more satisfying results (Hackman & Wageman 2005).

Performance-based coaching focusses primarily on short- and long-range career objectives with the purpose to "optimise people's potential and performance" (Whitmore 2002: 97) by helping them make better use of their strengths (Carter 2002). Berg & Karlsen (2007: 4) define performance-based coaching as:

> *"the process of challenging and supporting a person or a team to develop ways of thinking, ways of being and ways of learning."*

Change-based coaching

Change-based coaching (Kilburg 1996; Spence & Grant 2007; Bono *et al.* 2009; Dagley 2010) aims at a sustained behaviour change (Wasylyshyn 2003) with emphasis "attaining personal development outcomes that are valued by the coachee" (Spence & Grant 2007: 186). The coaching competency lies in fostering change of people's environment (Kilburg 1996), behavioural patterns (Dagley 2010) or learning (Levenson 2009).

Presumed outcomes of coaching are regarded as changes in behaviours with a presumed increase in organisational effectiveness (Feldman & Lankau 2009). The positive linkage between behavioural change and coaching was confirmed in a majority of studies (Levenson 2009), which confirm the focus on interpersonal interactions (Dagley 2010) to explore personal values and deep-seated issues (Stern 2004). Heslin, Vandewalle & Latham (2006) define change-based coaching as

the process through which supervisors may communicate clear expectations to employees, provide feedback and suggestions for improving performance, and facilitate employees' efforts to solve problems or take on new challenges.

Project-based coaching

Several authors (Whitmore 2002; Hackman & Wageman 2005; Dagley 2010 ; Stern 2004) strictly separate performance-based and change-based coaching. Greif (2011) merges both approaches by saying, that coaching is change-based, but mostly described as being goal and objectives driven. Due to the combined view on individual change resulting in team performance and striving for goal accomplishment based on the nature of projects, Bluckert's (2005) combined definition to coaching was chosen for this study and will be referred to as project-based coaching:

"the facilitation of learning and development with the purpose of improving performance and enhancing effective action, goal achievement and personal satisfaction. It invariably involves growth and change, whether that is in perspective, attitude or behaviour" (Bluckert 2005: 173).

2.2.1 Coaching Focus

Coaching focuses on developing people and continued development in a rapidly changing global economy (Kampa-Kokesch & Anderson 2011), with the purpose to make better use of their strengths (Carter 2002).

Individual Coaching

One-on-one coaching focuses on understanding people's problem behaviour in context (Wasylyshyn 2003; Waldroop & Butler 1996). It develops personal, functional and business skills, and influences organisational performance (Cerni, Curtis & Colmar 2010). It involves growth and change, and affects both personal development and business performance. The coach is required to promote the coachee's interest (Curtis 2007; Whitmore 2002; Cox 2003) and stipulate it with project goals (Berg & Karlsen 2007).

Team Coaching

The concepts of one-on-one coaching can be applied to team coaching (Whitmore 2002), as it is based on the same principles as coaching individuals. Coaching teams is an act of leadership (Hackman & Wageman 2005), which in comparison to individual coaching demands a great deal of practical experience (Whitmore 2002). The coach is required to interact with both the team as an entity, and its members as individuals (Wageman 2001).

The strength of the team depends on the people who comprise it and how they commit to the tasks (Ba Banutu 2012). Team development needs to take changes of the team in consideration, as teams evolve during the project progresses (Hackman & Wageman 2005). The stage of team evolvement bears specific performance drivers (Kirkman *et al.* 2004) and requires adapted forms of coaching (Bluckert 2005). Berg & Karlsen (2007) distinguish different coaching types in project coaching (Table 2-9), which are confirmed by Bluckert (2005).

Project Coaching Type	Purpose
Knowledge Coaching	Provide project members knowledge and skills in specific areas.
Skill Coaching	Change the PM's or team manager's leadership behaviour. Typical skills are the ability to give and praise criticism, feedback, delegation, conflict resolution and performance proficiency.
Personal Coaching	Help the PM to find solutions to concrete personal challenges. Personal coaching is similar to life-coaching (Grant 2003).
Result Coaching	Help the PM and the team members to achieve specific goals, like project milestones, personal results and final project result.
Development Coaching	Help the PM or other team members get more interesting work tasks where the person's experience and knowledge is used to the fullest potential.

Table 2-9: Project Coaching Types (Berg & Karlsen 2007)

Every team has a unique demand for required skills, and like there is no unique leadership-style for all situations, there is no unique team skill-set for all teams.

Background for Coaching

The main concern and debate with individual coaching found in Kampa-Kokesch & Anderson's (2011) comprehensive literature review is as to whether coaching

practices resemble too closely the practices of psychotherapy. This concern is reflected in the on-going discussion about the required background of the coaching practitioner. As the industry of coaching is not a regulated one (Mulec & Roth 2005; Bono et al 2009), and there is no agreed standard regarding the qualification of coaches (Douglas & Morley 2001; Kampa-Kokesch & Anderson 2011) or a proven methodology (Wasylyshyn 2003; Dagley 2010). Some authors (Peltier 2010; Stern 2004; Wasylyshyn 2003; Bluckert 2005) argue that effective coaches are required to have a background or at least strong experience in psychology (Mulec & Roth 2005; Kilburg & Levinson 2008), while other authors strongly disagree (Whitmore 2002; Feldman & Lankau 2009). These authors have emphasised the importance of coaches being knowledgeable about the business context in which the coachee operates (Feldman & Lankau 2009).

Bluckert (2005) argues that not a situation requires a certain background of the coach, but vice versa the background of the coach sets the emphasis of coaching. While non-psychologist coaches most likely focus on stress-management, time management, sales or financial performance, mentoring, and planning, psychologist coaches are most likely to focus on building rapport, assist clients with applying new skills at work, and more likely to set goals for behaviour change. Bono *et al.* (2009) reinforce this argument with their research comparing psychologist and non-psychologist coaches. Its results provide no evidence for significant differences between the two types of coaches in most of their activities. Psychologist coaches define coaching in terms of change, mainly behavioural change, while the overlapping areas of psychologist and non-psychologist coaches are leadership and interpersonal skills.

Independently from the background of the coach Berg & Karlsen (2007) demand the coach to possess a wide repertoire of coaching styles and tools to meet requirements of shifting situations. In project management-by-coaching the coach is required to respond quickly to shifting situations. Therefore, the author strongly agrees with Wasylyshyn (2003), who stipulates the usage of a sound and clear coaching methodology.

2.2.2 Coaching Areas

It is agreed in the literature (Kilburg 1996; Whitmore 2002; Clegg *et al.* 2005; Heslin, Vandewalle & Latham 2006; Spence & Grant 2007; Levenson 2009; McGill 2010) that coaching can be person specific and not-person specific. Mapping person specific and not-person specific coaching interventions with change-based and performance-based approaches, reveals a set of four coaching areas (Bono *et al.* 2009; McGill 2010) (Table 2-10).

	Person Specific	**Not-Person Specific**
Change-based	Life Coaching	Workplace Coaching
Performance-based	Executive Coaching	Business Coaching

Table 2-10: Coaching Areas (Bono et al 2009; McGill 2010)

Not-Person Specific Coaching

Not-person specific coaching focuses on processes and organisational improvements. It reflects the needs of the organisation to improve its procedures and focuses on practical and specific business issues and aims at skill development to achieve certain business outcomes (Clegg et al. 2005). It takes place in a variety of contexts (Sperry 1993). In a not-person specific context coaching can be loose and informal (Whitmore 2002) without the coachee being informed about the intervention.

Workplace Coaching

Workplace coaching aims at integrating into and learning about the organisation's culture. It is normally not conducted by a trained professional coach, but a colleague acting as a coach with organisational understanding, and addresses groups, organisational units or departments. It aims at skill development, and focuses on practical and specific business issues (Clegg *et al.* 2005).

Business Coaching

The purpose of business coaching is to develop the entire business organisation by goal-setting and one-on-one work sessions with key stakeholders and influencers who can effectuate the necessary changes (Clegg *et al.* 2005). Business coaching is

about empowering individuals to gain new skills (Clegg *et al.* 2005; McGill 2010) to ultimately improve business performance (Waldroop & Butler 1996).

Person Specific Coaching

Person specific coaching aims at helping individuals to construct individual solutions and assist with applying problem solving strategies (McGill 2010; Spence & Grant 2007). It is tailored along the individual needs and focuses on motivation and change (Clegg *et al.* 2005). The nature of a coaching intervention directly influences the coach-client relationship, so that coaching in a person specific context is described as a one-on-one relationship (Stern 2004; Wasylyshyn 2003).

Life Coaching

Life coaching is a change-based systematic, structured and goal focused approach to promote motivation, goal striving and attainment, and enhance personal growth in an educational setting (Grant 2001; Spence & Grant 2007). Life coaching is normally conducted by trained professional coaches (Wasylyshyn 2003), based on a deep, meaningful and trustful relationship.

Executive Coaching

Executive coaching (EC) is a performance-based person specific approach to coaching (Bono *et al.* 2009). EC is a custom tailored (Clegg *et al.* 2005; Curtis 2007), work-related development that "spans business, functional and personal skills" (Carter 2002: 33), focusing on the professional and personal development of managers in an organisation (Peltier 2010), and organisational performance (Carter 2002). It aims at improving overcoming the lack of opportunities provided for growth, poor leadership skills and the recognition that interpersonal skills are key in effectively managing oneself and those in a company (Kampa-Kokesch & Anderson 2011).

A definition to reflect all dimensions of EC is that by Kilburg (1996: 142):

> *"A helping relationship formed between a client who has managerial authority (..) and a consultant who uses a wide variety of behavioural techniques and methods to help the client achieve a mutually identified set of goals."*

Coaching, Manipulation, Guidance and Control

Although it is widely agreed in the literature (Berg & Karlsen 2007; Peltier 2010; Bono *et al*. 2009) that the outcome of coaching is potentially positive, Levenson (2009) urges that coaching is not always the tool of choice. He warns that organisations potentially "overuse it as an intervention when other interventions (..) may be the best remedy" (Levenson 2009: 118). If a developmental need was identified, a formal training program or on-the-job learning experience may be the best remedy. A formal training program focuses on the other person's or team's interests, but unlike coaching provides answers and gives advice (Figure 2-2).

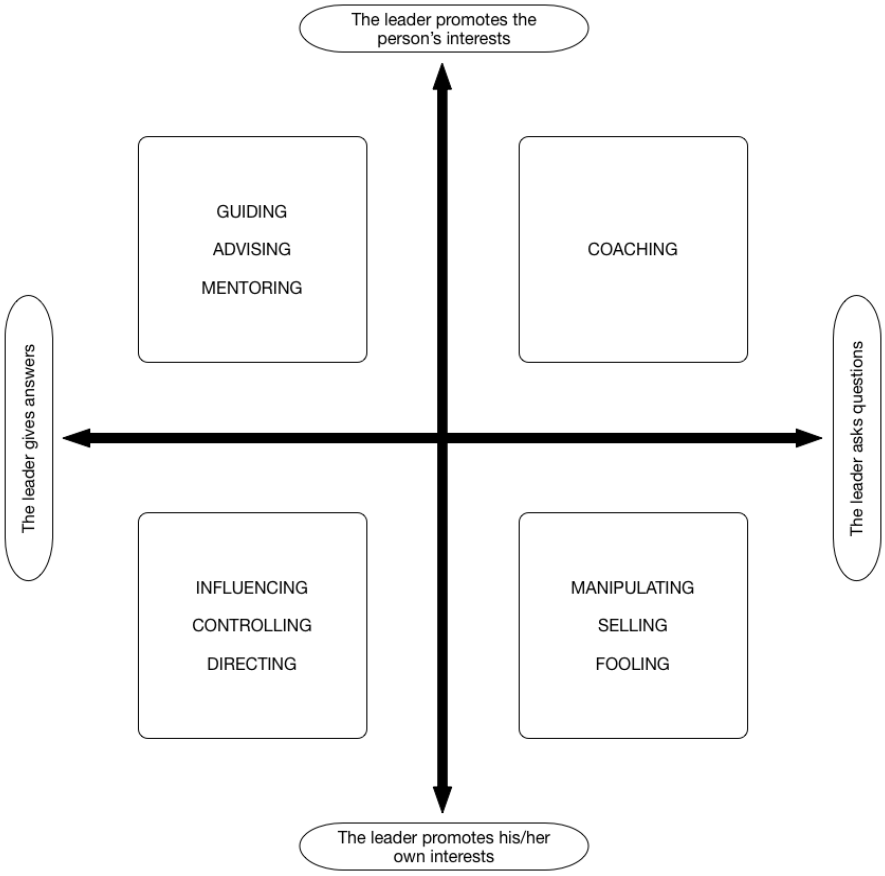

Figure 2-2: Force Field of Interests and Leadership (based on Berg & Karlsen 2007)

A second consideration more implicitly discussed by several authors (Peltier 2010; Bass & Steidlmeier 1999; Greif 2010; Dulewicz & Higgs 2003) refers to the moral groundedness of the leader. Both, guiding and coaching have the person's interests in mind. But the coaching project manager in PMC may have conflicting goals - the ones derived from the project teams' needs and the ones formulated by the sponsor of the project. This conflict might lead him/her to promote other interests instead of

the ones of the coachees, which could be perceived as being manipulative. Yukl (1999: 296) lists a number of possibly manipulative behaviours like “covering up mistakes and failures”, “blaming others for the leader’s mistakes”, or “limiting member access to information about operations and performance”. This possible issue needs to be considered carefully in a practical approach to PMC.

2.2.4 Process of Coaching

Many authors (Berg & Karlsen 2007; Clegg *et al. 2005*; Mulec & Roth 2005; Kilburg & Levinson 2008) agree that coaching is an interactive process nearly always done in real business time, that follows a pattern of steps that only vary in detail. It focuses on specific real-life contextual issues like thinking, behaviour, learning or emotional patterns (Berg & Karlsen 2007). Administrative or contractual issues on the part of the client or coach should be agreed upon before the formal process of coaching begins (Kilburg 1996). Objectives of the coaching should be made clear in a formal working agreement to structure the relationship between coach and client (Sadowsky 2007). Once objectives and preconditions for the coaching are agreed upon, the process of the coaching can formally begin.

The widely agreed (Berg & Karlsen 2007; Clegg *et al. 2005*; Mulec & Roth 2005; Kilburg & Levinson 2008) process of the coaching focuses on diagnosing the environment and preconditions, deriving goals for the coaching basing on the diagnosis, planning the intervention with respect to the goals, and implementing the plan by conducting the coaching interventions. The execution is followed by a cycle of continuous follow-up to help deriving new goals and measure the progress and success of the intervention. The self-regulatory approach including a continuous follow-up loop is presented in figure 2-3.

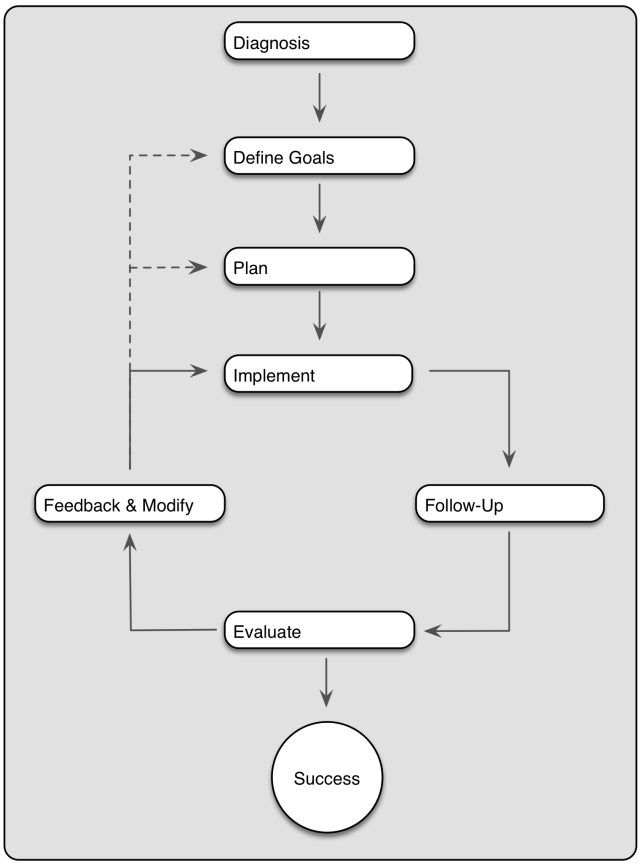

Figure 2-3: Coaching Process (based on Berg & Karlsen 2007; Clegg et al. 2005; Mulec & Roth 2005; Kilburg & Levinson 2008)

Despite the variety of coaching models presented in the literature, they all share common themes relative to the process (Kampa-Kokesch & Anderson 2011), though some authors (Douglas & Morley 2001; Stern 2004) use a different terminology. All models have in common that diagnosis is excluded from the continuous self-regulatory process.

Diagnosis

It is common sense in the literature (Douglas & Morley 2001; Stern 2004; Clegg *et al. 2005*; Mulec & Roth 2005; Kilburg & Levinson 2008; Perkins 2009) that establishing a coaching relationship is foundational for successful coaching. Berg & Karlsen (2007) and others (Carter 2002; Clegg *et al. 2005*; Mulec & Roth 2005; Perkins 2009) refer to this stage as the diagnosis stage.

According to Mulec & Roth (2005) and Perkins (2009) the building blocks for establishing a coaching relationship are clarifying the present situation, developing

trust and establishing rapport processes. Wasylyshyn (2003) emphasises a trustful relationship between the coach and the client essential. Depending on the focus of the coaching the relationship either requires an alliance depending on trust, confidentiality, and availability (Wasylyshyn 2003), or an established collaborative partnership with the coachee (Clegg *et al.* 2005). The importance of trust and relationship makes the coachee "one of the cornerstones in the coaching process" (Mulec & Roth 2005: 484).

Define Goals

Kampa-Kokesch & Anderson (2011) and others (Grant 2006; Perkins 2009; Greif 2010) state that goal clarification is one of the most important tasks in the coaching process. According to them it is central to the coaching process to articulate and clarify personal goals. Greif (2010) calls goal setting a universally used coaching technique, which according to Locke & Latham (1990) is described as being highly effective regarding team motivation and managerial productivity.

Coaching is a highly action oriented (Spence & Grant 2007) process of deriving and refining goals (Greif 2010). For the coachee it is adequate to set abstract or even vague goals and to start to develop a broad vision (Greif 2010), rather than the coach providing or developing solutions for the coachees (Clegg *et al.* 2005). Own goals when gained with an optimal level of goal difficulty, specificity, and proximity (Grant 2006; Latham 2007; Perkins 2009) motivate through induced self-engagement (Greif 2010), which hands over the responsibility for the goals to the coachee.

Plan

An action plan is required to be elaborated, to define specific steps to achieve developmental goals (Berg & Karlsen 2007). For elaborating an action plan Kilburg (2007) suggests an approach to story telling in which the coach creates scenarios that symbolise both problems and solutions, and the coachee is asked to amend stories and propose additional solutions according to individual needs. In accordance with figure 2-2, the force field of interests and leadership, this study does not perceive an approach providing solutions as coaching.

Richard (2003) proposes to hand over the responsibility for action planning to the coachee only. He suggests the use of rational, creative problem solving techniques that utilise well-developed strategic questioning skills with the aim to define the underlying problem to be solved to reach the defined goals. He proposes an attribute listing in which the client lists the major characteristics of each idea or choice, followed by considerations that can be made in favour or against each choice. PMC lets the coachee choose of various combinations of options to occur for the client to reach a comfortable, well thought out choice of actions to take.

Implement

To progress towards goals and achieve actions, the plan is required to be implemented (Berg & Karlsen 2007) or executed (Douglas & Morley 2001). Many authors (Berg & Karlsen 2007; Carter 2002; Clegg *et al.* 2005; Douglas & Morley 2001; Mulec & Roth 2005) agree that the planning stage is followed by an implementation stage in which the defined actions are taken.

Continuous Self Regulatory Process: Follow-Up, Evaluate, Feedback & Modify

The cycle of continuous follow-up strives for evaluating the effects of the execution, the degree of goal accomplishment, and feedback and modification of the implementation. As the continuous follow-up cycle delivers input for following cycles of coaching (Berg & Karlsen 2007; Clegg *et al. 2005*; Mulec & Roth 2005; Kilburg & Levinson 2008), the coaching relationship needs to be stabilised, retained, and maintained (Wasylyshyn 2003; Clegg *et al.* 2005). Clarifying the present situation (Perkins 2009) ends, when the process of coaching is finished (Wasylyshyn 2003).

2.2.5 Coaching Outcomes

Wasylyshyn (2003) contends that the outcome of coaching is positively related to the amount of coaching interventions conducted. The more time spent with coaching, the more outcome will be generated. The evaluation of the outcome's quality is subject to discussion in the literature.

For Brotman *et al.* (1998) behavioural change is the primary measure of coaching success. When coaching induced the willingness to learn and change, the coaching according to him was a success. Wasylyshyn (2003) agrees to that by stating that the most positive coaching outcome is the coachee's motivation to learn or change. Levenson (2009) disagrees this opinion by explicating that not every behaviour change indicated successful coaching. According to him changes not materially impacting business in the long run are not relevant for a company's success. Coaching affecting individual aspects only, without direct material impact, does not generate a relevant business outcome.

Spence & Grant (2007) contradict the idea of direct material impact by considering that behaviour changes not directly related to business performance may also have a positive impact on performance. They acknowledge Brotman's *et al.* (1998) view by determining that coaching related to personal well-being may also affect the coachee's motivation and therefore indirectly may have a strong business impact. This study follows Spence & Grant's (2007) assumption, supported by Mulec & Roth's (2005) research, that motivated individuals contribute to team performance, no matter what exactly motivates them.

Greif (2010) states that success of coaching interventions today cannot be fully explained by scientifically defined factors or qualitative analyses. Levenson (2009) shows in his case-study research on the impact of coaching that there are individual actions or behaviours whose effectivity directly depend on the presence or absence of coaching. In the presence of the coaching, the coachee performs those actions or behaviours correctly; in the absence of the coaching s/he does not.

2.3 Management-by-Coaching

The third part of the literature review examines the literature regarding management-by-coaching approaches within the context of the business coaching and project management literature. In the context of project management, a leadership-style is most desirable that fosters project performance. Project performance depends on team member's talents, the available resources and the processes team members use to interact with each other to accomplish the work (Marks, Mathieu & Zaccaro 2001).

Transformational leadership directly contributes to motivation and job performance (Grant 2012; Dulewicz & Higgs 2003), team effectiveness (Slevin & Pinto 2004), and emotional competence (Goleman, Boyatzio & McKee 2002; Dulewicz & Higgs 2003) contributing to team performance (Turner 1999). An in-depth evaluation of the interrelations between transformational leadership and team performance was conducted by Krishna (2011), whose study reports a positive association between transformational leadership and team performance. Critical success factors for transformational management itself are management, leadership and team work (Turner 1999; Sumner, Bock, Giarmartino 2006; Dvir, Sadeh & Malach-Pines 2006; Turner & Müller 2005; Thamhain 2004; Slevin & Pinto 2004).

The interrelations are reflected and assembled in figure 2-4.

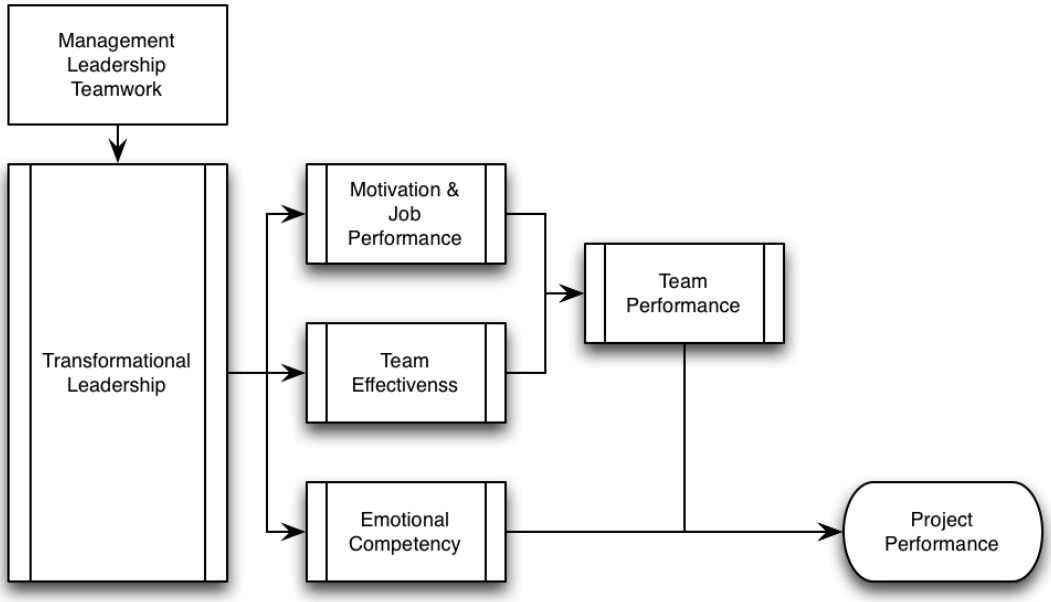

Figure 2-4: Critical Success Factors for Project Performance (developed by Author)

Management-by-coaching requires highest managerial skills and the willingness to adopt a fundamentally different approach to the staff (Whitmore 2002). The coach is ultimately responsible for engaging the client in full participation of the coaching process (Kilburg 1996), which may be needed to suspend certain behaviours that are needed in other business contexts (Waldroop & Butler 1996). The practitioner of management-by-coaching promotes the coachees' interest without guiding or being directive (Berg & Karlsen 2007). Whitmore (2003) refers to coaching as leadership by asking questions. Yukl (1999) criticises that the underlying influences for

transformational (and transactional) leadership are subject to debate. Its descriptions are vague and its relative importance is contradictory. According to him a charismatic leader may create loyal, obedient followers. But this charisma may also inhibit them from showing initiative, take responsibility or provide feedback to the leader. They may tend to ignore that plans and policies proposed by the leader are unrealistic and impractical.

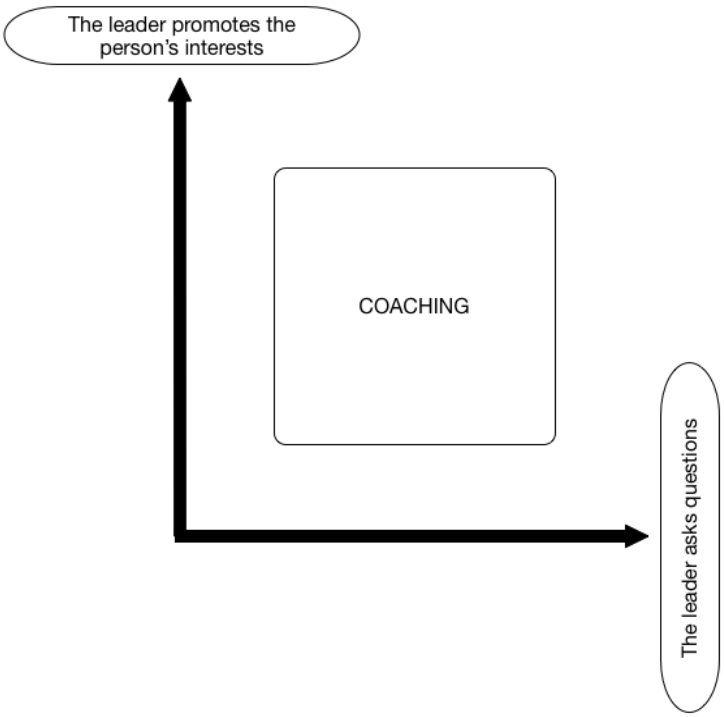

Figure 2-5: Leadership-by-Coaching (based on Berg & Karlsen 2007)

Dulewicz & Higgs (2003) propose management-by-coaching a leadership-style mainly basing on the combinations of emotional competencies (EQ), intellectual competences (IQ) and managerial competences (MQ). In PMC the project manager is the coach (Berg & Karlsen 2007), applying a person specific (Clegg *et al.* 2005) approach to individuals and teams (Stern 2004; Ely *et al.* 2010; Berg & Karlsen 2007), with the goal to achieve and sustain a high standing on individual contribution and team processes (Mickan & Rodger 2000).

It is not unusual for the project manager to get responsibilities passed on that might normally be thought to belong to the client and to spend hours of coaching activities (Horner-Reich & Sauer 2010). Coevally managers are often encouraged to coach their subordinates as part of their job responsibility (Feldman & Lankau 2009),

without being equipped with the necessary skills (Horner-Reich & Sauer 2010). Whitmore (2002) states that managers who manage by coaching get the job done to a higher standard, and develop their people simultaneously. As the process of coaching does not require being formal (Whitmore 2002), neither the coach nor the coachee is required to necessarily know that he or she performing management-by-coaching or is being coached.

2.3.1 The Role of the Coach

Kilburg (1996) calls the coach ultimately responsible for engaging the client in full participation of the coaching process. To do so s/he is responsible for providing knowledge, skills, and technical assistance for the client's professional and personal growth.

Coaching as a complicated combination of knowledge, skills, and stylistic inclinations (Stern 2004) usually requires formal training and education. Greif (2010) assembled a list of observable patterns of coaching (see table 2-11), but notes that it makes no claim to be complete. Berg & Karlsen (2007) demand the background of the coach make him or her possess a wide repertoire of coaching styles and tools to meet requirements of shifting situations and describe the coach as a person who possesses effective communication skills, is a good observer, an excellent listener, and someone who knows when and how to give valuable feedback.

The main distinction between approaches to coaching according to Curtis (2007) is whether the coaching follows a directive or a non-directive approach. According to Bluckert (2005) the emphasis of the coaching is often the product of the coach's professional background. Whitmore (2003) and Cox (2003) acknowledge Curtis' (2007) coaching peculiarities by describing directive coaches as providing leadership and advice, while non-directive coaches ask questions and listen (Curtis 2007). Whitmore (2003) proclaims coaching as being strictly non-directive and firmly discourage the coach from giving advice. Berg & Karlsen (2007) even avoid referring to directive-coaching as coaching. They prefer the terms Guiding, Advising, and Mentoring (see figure 2-5).

A research conducted by Bacon & Spear (2003) found that most coachees prefer the non-directive approach to coaching to help them explore the issues themselves.

Bresser & Wilson (2006) propose coaching as seeking not to influence the coachee. According to De Haan (2008) the coach should be inclined to give as little advice as possible. This study follows those authors who describe coaching as being strictly non-directive.

Observable Pattern	Explanation
Esteem & Emotional Support	The coach's observable verbal and non-verbal expression of esteem and emotional support towards the coachee.
Problem reflections	The coach's technique to activate problem reflection of the coachee, e.g., by asking open questions.
Self-Reflection	Self-reflection includes reflection on personal values, particular interests, abilities and competencies, strengths and weaknesses, typical emotional reactions, habitual behaviour and a comparison of the real and ideal self-concept. The coach helps to learn to stop rumination and to switch to reflection with concrete positive results.
Affect reflection and Calibration	The coach helps the coachee to generate positive and motivating emotions.
Clarification of Goals	The coach helps the coachee to provide concrete definitions and explanations of his/her goals and intentions in relation to the expectations of the social and organisational environment.
Resource Activation	Resource activation distinguishes between internal and external resources the coachee is able to activate. Internal resources of the coachee are motivational and personality traits, abilities, competencies, and potentials, while external resources refer to expert knowledge, emotional support, consults or support from those in the occupational environment.
Support of Transfer into Practice	The coach and the coachee together analyse concrete transfer barriers and solutions. The coach observes the coachee during the transfer and gives feedback.

Table 2-11: Observable Patterns of Coaching (Greif 2010)

2.3.2 Coaching Patterns

Passmore (2010) assembled a list of key coaching behaviours (Table 2-12) in which he collected thirteen behaviours which according to him are required to conduct successful to coaching. One of the keys is “being non-directive”. The list was confirmed in Dagley’s (2010) interview-based research.

Key Coaching Behaviours
Agreeing "common sense" confidentially rules
Holding the emotions of the coachee
Providing both challenge and support
Offering mechanisms for problem solving
Setting take-away tasks
Being non-directive
Using themselves as a tool
Helping the coachee develop alternative perspectives
Questioning
Listening
Reflecting back
Staying focused on the topic
Being empathic

Table 2-12: Key Coaching Behaviours (Passmore 2010)

Passmore & Gibbes (2007) state that the identification of the behaviours that make a difference in coaching has not succeeded yet.

Observable Patterns of Coaching

The coach's people management skills (Thamhain 2004) are described by Bluckert (2005) in a list of social awareness competencies (Table 2-13) split in the fields of Self-Awareness and Awareness-of-Others.

Self-Awareness	Awareness-of-Others
Coach demonstrates capacity to	
Send back from their own experiences and notice the preferences, biases, and blind spots that underpin their behaviour	Suspend judgement about a person's feelings, thoughts and behaviours
Give an account of their personal history, with emotional relatedness to the meaning of key events	Evoke and build an account of a person's history, and its emotional feelings
Reflect on their own behaviour, and surface unconscious motivations	Understand the conscious and unconscious motivation of others, and ist affect on their thoughts
Examine their feelings, thoughts and reactions, and distinguish those evoked by others from those deriving from thier own psychology (i.e. working with the counter-transference)	Identify patterns of relating from the past that are being re-enacted in the present (i.e. working with the transference)
Shift theier focus of attention across different aspects of their mental and emotional experiences (e.g. actions, cognitions, emotions, systematic context	Make links between different domains of a person's experience (e.g. past/present; personal/organisational; actions, cognitions and emotions)

Table 2-13: People Management Skills (Bluckert 2005)

Dagley (2010) combines Passmore's (2010) key coaching behaviours with social awareness competences to formulate exceptional coaching capabilities (Table 2-14). The key is the ability to connect and engage with the coachee rapidly and be empathic and respectful, trust-building, rapport-building and an experienced listener (Dagley 2010).

Coaching Capability	Coaching Experience
Credibility Empathy and Respect Holding the Professional Self	**Engagement** Rapidly connect and engage with the coachee around coaching tasks
Diagnostic Skill and Insight Approach Flexibility and Range	**Deeper Conversations** Intuit and understand the underlying factors that are core of the work with each coachee
Works on the Business Context A Philosophy of Personal Responsibility Skilful Challenging	**Insight and Responsibility** Be business-centric, be aware of the organisational context, and be reliable in working to the brief and thorough in following-up

Table 2-14: Exceptional Coaching Capabilities (Dagley 2010)

Greif (2010) distinguishes between seven observable patterns of coaching (Table 2-11).

2.4 Synthesis of Literature

Classical project management refers to better control and use of existing resources in a temporary organisation (PMI 2013). It focuses on tools, techniques and processes. Project management-by-coaching enhances classical project management by considerations of leadership and people management. Such a non-classical approach to project management requires both, project management competences and leadership skills. It requires the project manager to shape interpersonal relationships and cooperation with stakeholders of the project (Dulewicz & Higgs 2003). As project leadership (Turner 1999; Summer, Bock, Giarmartino 2006; Dvir, Sadeh & Malach-Pines 2006; Turner & Müller 2005; Thamhain 2004) and teamwork (Wageman 2001; Marks, Mathieu and Zaccaro 2001; Kirkman *et al.* 2004;

Westerveld 2003; Thamhain 2004; Driskell *et al.* 2006; Duygulu & Ciraklar 2008) have been identified as critical to project performance, the project manager contributes to project success with fostering team effectiveness (Duygulu & Ciraklar 2008). The team contributes to project success with providing a climate of active participation and minimal dysfunctional conflict at all organisational levels in the planning, formation, and execution of projects (Thamhain 2004; Kirkman *et al.* 2004).

As a function of non-classical project management, project leadership refers to the ability to influence the behaviour of individuals (Duygulu & Ciraklar 2008) and empower teams regarding performance (Kirkman *et al.* 2004). Due to its nature of concerning superior and subordinate relationships, Bass & Steidlmeier (1999) raise moral concerns regarding the character of the leader. The moral foundation of the project manager is crucial, as the project manager has to serve two possibly conflicting purposes: success of the project and performance of the team (Thamhain 2004; Kappelman, McKeeman & Zhang 2006). In terms of this study on project management-by-coaching, the project manager needs to be both qualified to provide suitable project management practices, and carefully developed skills in leadership (Thamhain 2004) along with personal capabilities.

2.4.1 Leadership for Change

Team work is a complex phenomenon, which requires empowerment and face-to-face meetings to prevent the team from becoming passive and likely to rely on their leaders for direction. There is a debate going on whether individuality is productive or counterproductive for the team. While Ba Banutu (2012) declares individuality as counterproductive for the team, Marks, Mathieu & Zaccaro (2001) find it influential for the whole team's performance. Kirkman & Rosen (2004) define team empowerment as individual increased task motivation effectuated by the team's collective and positive assessment of their relationships to tasks within an organisational context. Whitmore (2002) declares that the more a team is both individually and collectively, the better it will perform. This study follows the assumption that the non-classical project manager has to constantly balance individuality and collectivity (Whitmore 2002) and adjust his/her activities towards fostering team performance.

Team Effectiveness

Teams in a project environment are characterised by unique project attributes. Project teams are built to make up a temporary organisation and to share responsibility for a shared outcome and detailed tasks under restricted time and budget (Banham 2009). Team effectiveness occurs under two conditions. Firstly, regarding team structures and relationships within the team. Secondly, regarding reaching the project's goals as a team. There is a debate going on whether factors contributing to team effectiveness are mainly provided by the leader or by the team. Duygulu & Ciraklar (2008) state that team effectiveness is mainly provided through managerial factors like team composition, team stability, team size, and member involvement. Wageman (2001) in contrast concentrates on team factors like task performance, group process and individual satisfaction, factors mainly provided by the individuals within the team. This study follows the assumption that the non-classical project manager has to provide managerial factors to foster team effectiveness, and has to be aware of group processes and team skills. This view is substantiated in Mickan & Rodger's (2000) literature review, which identified factors of effective teamwork in the organisational, individual and team dimension.

Suitable Leadership

Many authors (Marks, Mathieu & Zaccaro 2001; Wheeler, Hihn & Wilkinson 2002; Dionne *et al.* 2002) support the view of considering the environment, as well as individual and group contribution. It is widely respected that the organisation is based on managerial factors and the social environment, consisting of team interactions and interactions between individuals, the team and the leader. In terms of this study the non-classical project manager is understood as constantly balancing individuality and collectivity (Whitmore 2002), as providing managerial factors to foster team effectiveness, while detecting varying group processes and team skills depending on the maturity and state of the team (Hackman & Wageman 2005). The effective project manager balances factors of individuality, collectivity, management and team factors over time.

The factors of effective teamwork to be provided by the project manager in the organisational dimension are setting clear goals (Banham 2009; Kerzner 2009;

Kirkman & Rosen 1999; PMI 2013), generate a results-driven organisation, provide a clear mission, and provide suitable leadership (Mickan & Rodger 2000). Individual factors the team members need to provide for effective teamwork are commitment to a set of unified team goals and values (Mickan & Rodger 2000; Dionne *et al.* 2002), trust and self-awareness as stabilising factors when building commitment, and flexibility to be open for other opinions and ideas (Mickan & Rodger 2000). Factors in the team dimension are an open and easy communication (Dionne *et al. 2002*), decision-making (Kirkman & Rosen 1999), cohesion, as the team members' personal attraction to the team and the tasks (Mickan & Rodger 2000), and cooperation, as the ability to solute conflicts in a productive way, and to influence team performance positively (Dionne *et al* 2002).

The project manager cannot directly contribute to the individual and the team dimension, as s/he only provides factors to foster team effectiveness in the organisational dimension. To balance factors in the individual and team dimensions, s/he needs to implement suitable tools for influencing the project team, foremost suitable leadership (Mickan & Rodger 2000).

Conducting Change

Project leadership refers to team empowerment and people development. It covers the managerial competences to shape interpersonal relationships, communication, collaboration and cooperation with stakeholders related to the project (Slevin & Pinto 2004; Sumner, Bock & Giarmartino 2006; Berg & Karlsen 2007; Kerzner 2009). To shape team processes an effective team leader (Thamhain 2004; Kirkman *et al.* 2004) is needed, contributing to team composition, team stability, team size, team beliefs and member involvement (Duygulu & Ciraklar 2008; Krishna 2011).

The leadership-style applied to the project team is required to foster a climate of active participation and minimal dysfunctional conflict by involving people at all organisational levels in the planning, formation, and execution of projects (Thamhain 2004). According to Dulewicz & Higgs (2003) the most important aspect to be considered by the project manager is the motivational. They state that motivation has a larger impact on productivity and quality than any other factor. Suitable leadership allows the project manager to balance the influencing factors for the organisational,

individual and team dimension. Therefore, following Turner & Müller (2005) effective leadership is based on the leader's ability to conduct change.

Leadership-Styles

The classical leadership schools focusing on traits, behaviours and situational leadership fall short as general theory of leadership, because no unique list of traits or behaviours successful leaders have in common, and no unique leadership-style fitting all situations was found (Geoghegan & Dulewicz 2008). Bass (1990) identified transactional, transformational and laissez-faire leadership as the three leadership styles that impact the ability to change.

Laissez-faire leadership indicates the *absence of leadership* (Bass 1990a), avoiding decision-making and supervisory responsibility. It therefore cannot be considered a leadership-style suitable for project management.

Transactional leadership is defined as a process of followers for meeting performance targets. Transactional leadership theories are founded on the idea that followers receive direct rewards for their work (Bass 1990; Bass & Steidlmeier 1999), measured against performance criteria, assessed and rewarded by the leader. The motivational aspect is considered by goal clarification, tasks and delegation of responsibility. The main concern regarding transactional leadership is that of mutual dependence between leader and followers. The transactional leader is necessarily influential because following the leader’s will is beneficial for the follower (Bass & Avolio *et al.* 2003; Bass & Avolio 2011). According to Bass (1990) transactional leadership fosters a climate of obedience and compliance, but according to Judge & Piccolo (2004) it is more commonplace than transformational leadership.

Transformational leadership focuses on developing a shared vision (Nixon, Harrington & Parker 2012), respect and trust, providing inspiration, motivation and modelling behaviours (Bass 1990). It focuses on behaviour change of the followers and involves the building of relationships based on personal, emotional, and inspirational exchanges, with the goal of developing followers to their fullest potential (Covey 1992). Bass & Riggio (2006) revealed a clear correlation between transformational leadership and emotional intelligence, which was acknowledged by Goleman, Boyatzio & McKee (2002) and Dulewicz & Higgs (2003). Nixon,

Harrington and Parker (2012) and others (Bluckert 2005; Dagley 2010; Greif 2010) state that a poor level of emotional intelligence can directly contribute to poor leadership.

The main concern raised about transformational leadership is quite similar to that about emotional intelligence theories and models. It mainly refers to its measurement rather than efficiency. According to Bryman (2004) most studies on transformational leadership are flawed, so that it has not been fully explained by scientifically defined factors or qualitative analyses. Conte (2005) states that based on empirical research to date superiority of emotional intelligence over predictions and decisions is unfounded and unsubstantiated. Like Bryman (2004) regarding transformational leadership he criticises that emotional intelligence development can only be fostered with the use of valid and rigorous research designs. The literature supposes that neither interaction (Geoghegan & Dulewicz 2008), nor transformational leadership (Yukl 1999), nor emotional intelligence (Conte 2005), nor competence driven approaches (Bolden 2006), nor coaching (Greif 2010) can be fully explained by scientifically defined factors or qualitative analyses (Greif 2010; Yukl 1999; Conte 2005; Goleman, Boyatzio & McKee 2002; Dulewicz & Higgs 2003).

But while there are major concerns regarding factors to quantify its success, neither the impact of transformational leadership (Goleman, Boyatzio & McKee 2002; Dulewicz & Higgs 2003), nor that of emotional intelligence (Conte 2005), nor their correlation (Bass & Riggio 2006), nor the team empowering effect of transformational leadership (Covey 1992), nor the impact of coaching (Peltier 2010; Greif 2010; Whitmore 2002; Wasylyshyn 2003) have been subject to major dispute. Levenson (2009) revealed that there are individual actions or behaviours whose effectivity directly depend on the presence or absence of coaching. The literature agrees that the leadership-style closely related to coaching is transformational leadership (Bass 1990; Bass *et al.* 2003; Dulewicz & Higgs 2003; Slevin & Pinto 2004; Keegan & den Hartog 2004; Cerni, Curtis & Colmar 2010; Grant 2012). In terms of this study these concepts are assumed to be effective without being explained by scientifically defined factors or qualitative analyses.

This study follows the concepts of Judge & Piccolo (2004) who state that successful leaders are both transactional and transformational. According to them "transformational leadership must be built on transactional leadership" (Judge &

Piccolo 2004: 756), as transactional leadership results in followers meeting expectations, while transformational leadership motivates followers to move beyond expectations. Judge & Piccolo (2004) proclaim both transactional and transformational as valid leadership-styles, where superiority of one to the other seems to depend on the context.

2.4.2 Project Leadership as PMC

The leadership-style mainly basing on the combinations of emotional competences (EQ), intellectual competences (IQ) and managerial competences (MQ) is referred to as management-by-coaching (Dulewicz & Higgs 2003; Whitmore 2002).

A competent coach understands someone's problem behaviours in context (Waldroop & Butler 1996), and develops people so that they produce more satisfying results (Hackman & Wageman 2005). Coaching in the project context requires both, change-based (Kilburg 1996; Spence & Grant 2007; Bono *et al.* 2009; Dagley 2010) and performance-based coaching (Grant 2001; Hackman & Wageman 2005; Clegg *et al.* 2005; Peltier 2010; Kampa-Kokesch & Anderson 2011; Levenson 2009). In project leadership coaching interventions focus on motivational coaching functions, consultative coaching functions and educational coaching functions (Bono *et al.* 2009; Kampa-Kokesch & Anderson 2011) and are nearly always done in real business time, focusing on specific real-life contextual issues like thinking, behaviour, learning or emotional patterns (Berg & Karlsen 2007), and always require a positive relationship between coach and coachee (Levinson 1996).

For gaining transformational project leadership the project manager, according to Nixon, Harrington & Parker (2012), needs to acquire, according to Peltier (2010), needs to develop by learning, and according to Turner & Müller (2005) and Peltier (2010), needs to attach by training the right combination of competences to provide transformational leadership (Bass & Steidlmeier 1999) in the project. The rejection of the classical leadership schools focusing on traits, behaviours and situational leadership in accordance with Bolden's (2006) disbelief that an acquired competence guarantees its use, while the absence of a competency does not make incompetent, raises concern that there is a universal right combination of competences to provide transformational leadership. Bolden (2006) states that contrary to the assumption of

most leadership competency frameworks, there is neither a linear nor causal relationship between competencies and job performance.

In terms of this study classical project management is seen as a profession based on knowledge, clearly defined competences and skills. The non-classical coaching part is understood as a complement rather basing on ideology and personal characteristics than uniquely defined traits, competences and behaviours.

2.4.3 The Coaching Project Manager

When applying a project management-by-coaching (PMC) approach, coaching is rather a function than the profession (Sperry 2008). Management-by-coaching requires ultimate responsibility for engaging the client in full participation of the coaching process (Kilburg 1996), as project managers do not have a formal authority over their team members (Feldman & Lankau 2009). The coaching needs to be structured (Sadowsky 2007), which reflects in a self-regulatory approach to coaching that is depending on goals and agreed by a majority of authors (Carter 2002; Clegg et al. 2005; Mulec & Roth 2005; Berg & Karlsen 2007; Perkins 2009). The initial phase of coaching concentrates on identifying and setting the frame for the focus of the coaching, coaching areas, and functions (Carter 2002; Clegg *et al.* 2005; Mulec & Roth 2005; Perkins 2009) and is referred to as diagnosis stage (Berg & Karlsen 2007).

Directive vs. non-directive coaching

Goal setting is according to Greif (2010) a universally used coaching technique, which is described as being highly effective regarding team motivation and managerial productivity (Locke & Latham 1990). The positive effect of goal and process clarity calls attention to the potential benefits of managerial interventions on goal setting, team role design, and process control. A majority of authors in the literature (Berg & Karlsen 2007; Peltier 2010; Bass & Steidlmeier 1999; Greif 2010; Dulewicz & Higgs 2003) agree that coaching is defined by promoting other people's interests, while promoting own interest is no form of coaching. There is a discussion going on whether coaching is directive or non-directive. According to Levenson (2009) promoting other people's interest while providing answers and giving advice

can rather be referred to as training. For him and Whitmore (2003), and following them, in terms of this study, coaching is understood as being strictly non-directive. In this sense only leadership by asking questions is coaching. Whitmore (2003) firmly discourages the coach from giving advice.

Continuous Follow-Up

From the goals defined an action plan that lists specific steps to achieve developmental goals is derived (Berg & Karlsen 2007). Many authors (Berg & Karlsen 2007; Carter 2002; Clegg et al. 2005; Douglas & Morley 2001; Mulec & Roth 2005) agree that the planning stage is followed by an implementation stage in which the defined actions are taken. The continuous follow-up cycle delivers input for following cycles of coaching (Berg & Karlsen 2007; Clegg et al. 2005; Mulec & Roth 2005; Kilburg & Levinson 2008). The coaching relationship initially setup in the diagnosis stage is under constant establishment and needs to be stabilised, retained, and maintained (Wasylyshyn 2003; Clegg *et al.* 2005). Diagnosis, and thus clarification of the present situation ends (Perkins 2009), when the process of coaching is finished (Wasylyshyn 2003).

Person Specific vs. Not-Person Specific Coaching

While there are numerous theories of person specific and not-person specific (Kilburg 1996; Whitmore 2002; Spence & Grant 2007; Levenson 2009) coaching interventions, covering change-based and performance-based approaches (Bono *et al.* 2009; Wasylyshyn 2003), focussing on different areas and functions (Berg & Karlsen 2007), there remains a significant gap in the understanding and development of the theory and practice of this coaching format. While research and theory development are weak in the field of coaching as a leadership-style, this is even more so in project management-by-coaching, despite the fact most approaches to leadership in project management propose a transformational leadership required for project management (Dulewicz & Higgs 2003; Slevin & Pinto 2004; Keegan & den Hartog 2004).

Coaching vs. Manipulating

Bass & Steidlmeier (1999) raise moral questions concerning both the character of the leader as well as the legitimacy of their programs. “Self-serving leaders could result in deception and exploitation of followers” (Bass & Steidlmeier 1999:182). They argue that leadership must be grounded in moral foundations. Yukl (1999) sees a preference for socially acceptable behaviours rather than manipulative behaviours that increase follower perception of leader expertise and dependence on the leader. In PMC the moral foundation of the project manager appears to be crucial, as the project manager is responsible for providing project success by achieving project goals and promoting team performance.

PMC

Project management-by-coaching needs to allow for two main sources for goal fulfilment. The primary goals for the project are derived from the project’s scope and provide business justification. These goals need to be reached by the project team and are usually not subject to negotiation. The primary project goals seem to set a transactional frame for the team. The secondary set of goals are derived from the team as a set of sub-goals with the purpose to develop the team and take the steps to fulfil the project goal efficiently. This “inner-structure” of the project organisation provides the environment for transformational behaviours and sets the transformational padding.

This study aims to contribute both to the enhancement of practice and the development of theory of this vital area of project leadership by refining the suggestion of Judge & Piccolo (2004) that successful leaders are both transactional and transformational.

Figure 2-6: Synthesis of the Literature (developed by Author)

CHAPTER 3: Research Design and Methodology

To find an answer to the research question: “How does project management-by-coaching as leadership-style of the project manager contribute to project team performance in German software development projects?”, a critical realist epistemological paradigm adopting a case study action research, following the grounded theory methodology was chosen.

The case studies are designed to address the research aims of exploring whether PMC as a leadership-style of PM raises project team's effectiveness and performance, contributes to individual's performance and interaction within the project team, and helps the external project manager to gain faster team acceptance; and finally develop a theory of PMC.

This chapter discusses the research methodology used to conduct this study to explore the impact of coaching to project teams. It furthermore concentrates on proposed instruments involved in data collection and analysis. It explains how the approach allowed the research to obtain a rich understanding of the specific research context, and how a theoretical understanding of PMC could be created.

The first part addresses the question why a qualitative approach in a case study is beneficial for the study, and explains why a classical action research model is best suited for the study. The second part refers to theory development, highlighting the key features of action research, validity of findings, and the issue of generalisation, and data collection and analysis. It finally addresses ethical considerations.

3.1 Design

The purpose of the study is to explore how PMC as leadership-style of the project manager contributes to project team performance. Previous research concentrates on segregated influence factors like communication, conflict solving or team engagement. It is stated (Mickan & Rodger 2000; Wageman 2001; Wheeler, Hihn & Wilkinson 2002; Duygulu & Ciraklar 2008) that teams evolve over time but all reviewed approaches trying to disclose the effects of management-by-coaching on teams presume static conditions and only take *ceteris paribus* environments in consideration.

Software projects in contrast are constantly influenced by change, transformation, and uncertainty. In a software project environment requirements are subject to continuous alteration and change. Therefore, a management-by-coaching approach is required to be highly flexible regarding the project and coaching goals.

The studies considering coaching in a management and team relationship mostly imply a three-way relationship. They either describe how to coach the manager or how to coach the team (Figure 3-1).

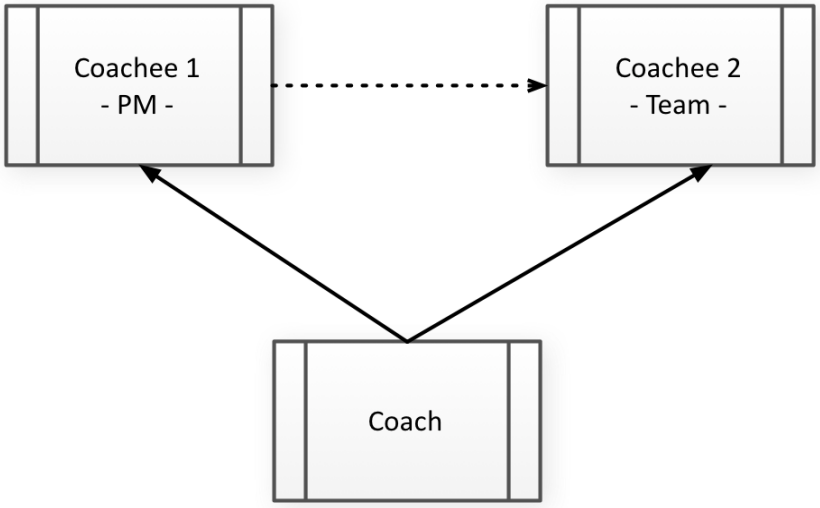

Figure 3-1: Three-Way Relationship of Project Manager Coaching (developed by Author)

Only few consider the executive in the role of the coach, while no research was found considering the project manager in the role of the team coach. Consolidating both roles in one person is a new approach, which has not been discussed in the literature.

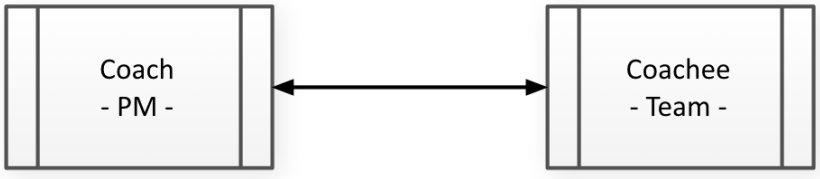

Figure 3-2: Two-Way Relationship of PMC (developed by Author)

Being one of the first in an area has implications for the research design. The need for a research method is to facilitate a valid collection and interpretation of the relevant data, and allow its release into the project domain.

3.2 Research Paradigm

The researcher's engagement is characterised by involvement in software development projects, direct interaction with stakeholders and leading and directing the project team. This involvement was used to generate data using participation, observation and interaction and influences the choice of research paradigm, which is determined by epistemological considerations.

The most common theoretical perspectives in classical sociological theory and cultural studies are positivist and interpretive definitions of theory (Charmaz 2006; Thomas 2009). The objectives of research in a positivist view are explanation, prediction and causality. Positivism seeks generalizability and universality and "simultaneously reduces empirical objects and events to that which can be subsumed by the concepts" (Charmaz 2006: 126).

This study's approach is characterised by integral and participative involvement of the researcher in projects. The researcher is making vital decisions that influence the data generated, such as team member selection and study design. Due to the increasing complexity when many factors either directly or by interference influence a system, a clear causality might only be shown when concentrating on isolated factors while ignoring others. It is therefore argued that a clean separation between the researcher and object of analysis is neither possible nor desirable (Smith 1998). The researcher is also the object of analysis and is studying an object of which he is a part.

An interpretivist approach emphasises understanding, which is gained from the researcher's interpretation of the studied phenomenon (Charmaz 2006). The researcher is participant in his own research and gains understanding as an insider (Thomas 2009), with the goal to gain a holistic overview of the context of meanings (Miles & Huberman 1994). Therefore, there is no way of successfully separating values from scientific research. As Stringer (1999 p. xii) points out, "Inquiries do not discover knowledge by watching nature do its thing from behind a thick one-way

mirror; rather, it is literally created by the interaction of inquirers with the object inquired into."

3.2.1 Critical Realism

The focus of constructivist studies lies on *how* and *why* participants construct meanings and actions in specific situations (Charmaz 2006). Constructivists explicate that it is impossible to portray reality, as no such thing actually exists. Any representation of reality is but one perspective or aspect thereof.

Realism claims that social phenomena exist not only in the mind, but also in reality (Miles & Huberman 1994), and "that some lawful and reasonably stable relationships are to be found among them" (Miles & Huberman 1994: 4). Critical realism claims it is possible to both gain objective knowledge of sense data and also acknowledge the subjective influence of perception and cognition. It works out human intentions within the frameworks of social structures, knowing that some social structures causing observable effects are unobservable, but yet real (Miles & Huberman 1994).

Positivism seeks to describe these observable effects, while critical realism looks to explain the social structures and events that create these observable effects. Traditional scientific models isolate events from the flow of reality, and seek to produce correlations and laws, unlike critical realism seeks to establish patterns, tendencies and social mechanisms. For these reasons Robson (2003) endorses critical realism as the research paradigm of choice for most social scientific research.

This study adopts qualitative methods, as it seeks to understand the effects PMC, understand the meaning it has for those being researched. Based on those observations critical realism has been adopted as the methodological framework for this research. Furthermore, the research is closely related to the researcher and emerging theories depend on the researcher's view (Charmaz 2006). The possibility to gain objective knowledge of sense data and also acknowledge the subjective influence of perception and cognition is claimed by a critical realist approach, which looks to explain reality. Critical realist approaches seek to establish the way different factors act against each other in reality, rather than isolating events from the flow of reality as in the traditional scientific model. Critical realism points out the limitations

of what might be known. Critical realism synthesises realist with constructionist elements and enables a rigorous form of interpretivist research.

3.2.2 Case Study Research

A case study (CS) method concentrates on the particularity and complexity of only one thing (Stake 2000; Thomas 2009). The aim of the CS is to "gain a rich, detailed understanding of the case by examining aspects of it in detail" (Thomas 2009: 115). CS research in itself is not a methodology, but a tool to focus on complexity. Case studies allow the observation of behaviours occurring outside the control of the researcher (McGill 2010), by exploring phenomena from multiple perspectives within their real-life context (Simons 2009). According to Thomas (2011a) the concentration on the consequences of practice is the main purpose of case studies.

Thomas (2011: 513) defines CS as

> "analyses of persons, events, decisions, periods, projects, policies, institutions, or other systems that are studied holistically by one or more methods. The case that is the subject of the inquiry will be an instance of a class of phenomena that provides an analytical frame - an object - within which the study is conducted and which the case illuminates and explicates."

Lowman (2005) criticise case studies for their subjectivity and potential for bias. Thomas (2011a) describes a CS as "seeing something in its completeness, looking at it from many angles" and calls this the "essence of good science" (Thomas 2011a: 23). Generally, a case is not studied to understand other cases, it is studied to understand itself. Therefore, several authors (Stake 2000; Yin 2009; Thomas 2011a) criticise generalisation from one case to a wider population as debatable. Consistent with the critical realism paradigm, CS focus on explaining *how* and *why* things happen by looking at the subjects from different varying angles. According to Simons (2009: 21) the case study is "research-based, inclusive of different methods and (...) evidence led".

Purpose of the Case Study

This study follows the traditional uses of case study research, in which the case study will be composed of multiple cases in form of software development projects. The

approach can be assigned to different projects in different companies as well as different projects in the same company.

Local Knowledge Case

Within the case the researcher examines the team conditions during the project lifetime and identifies and conducts coaching interventions. The researcher in the role of the coach records the impact of the coaching interventions on team behaviour and its performance. Thomas (2011a: 77) refers to CS research basing on personal experience and own special knowledge like project management and coaching as "Local Knowledge Case".

Thomas 2011a acknowledges the position, that "local theory" can only be applied to the context studied, producing non-replicable and not-generalizable results. According to Thomas (2011a) a single CS is not good to generalise from, but he also considers that "concerns about how far we can generalise from a case study are neutralised when we realise how tentative any generalisation might be in social research" (Thomas 2011a: 216).

Instrumental Case Study

The project team will be analysed regarding its interaction and communication to identify problems, followed by data gathering and preliminary diagnosis, leading to action planning, and finally to action and reflection. Findings regarding the impact of team coaching on the project team provided by the project manager will be captured and recorded by the researcher. The purpose of the CS is to derive potential explanations from looking at interrelationships within the cases. The case itself is of secondary interest - it facilitates the understanding drawn from the comparison of multiple cases. Yin (2009) argues that transferability increases with the number of cases compared, leading to generalisation from many case to a wider population. A CS based on only one case studied has a strong interest in the case itself, while the multiple case study approach lays focus on the phenomenon of which the case is an example for (Thomas 2011a).

The study mainly provides insight into an issue or to redraw a generalisation. The data derived from this study may not be applicable to organisations in different

contexts, but it may provide reflections and evaluations of the process of coaching and its modifications throughout the coaching intervention, and furthermore may be a starting point for discussing new requirements and qualification profiles for project managers. Thomas (2011a: 98) refers to multiple case studies with an interest on the phenomenon rather than the single case as “Instrumental Case Study”, and the suggested tool for data analysis is the cross-case analysis (Miles & Huberman 1994).

Ethnography

A CS basing on only one case studied has a strong interest in the case itself. By designing the study as an instrumental, multiple case study, its focus shifts from the details of one particular case to the underlying phenomenon and lays focus on the phenomenon of which the case is an example for. Miles & Huberman (1994) suggest enhancing generalizability by analysing multiple CS to see processes and outcomes across many cases to “develop more sophisticated descriptions and more powerful explanations” (Miles & Huberman 1994: 172) and to approve that events and processes described in one CS are not wholly idiosyncratic.

The interpretative approach is the classic approach to doing a case study and is often called ethnographic approach (Thomas 2011a; Stake 2000). Ethnographers aim to get into the centre of a culture with which they work by becoming members of the culture. The ethnographic researcher collects data and makes interpretations about what is happening along the research.

Ethnography appears to be the best suitable explorative approach for a project manager, as the project manager has to integrate into the culture of the project team, yet in many cases has to build it. Direct observation, informal discussions, and structured and semi-structured interviews are the first choice of tools for the project manager to collect data from within the project culture.

3.2.3 Action Research

Traditional approaches to social scientific research often aim to demonstrate causal relationships (McNiff & Whitehead 2011), and provide general explanations, which do not necessarily offer solutions to real situations (Stringer 1999). The case study

(CS) approach does not aim for general explanations. It is being studied to understand itself.

The concept of AR first appears in academic texts in the 1940s, associated with the work of social psychologist Kurt Lewin (Lewin 1946, 1947). Eden & Huxham (1996) point to Lewin's research as breaking new ground in seeking change behaviour and recording the outcomes of attempting to do so, and recognising the researcher as being visible and having an impact on the experiment. But still it is difficult to find an exact definition. Eden & Huxham (1996) evade the definition issue, choosing instead to enumerate fifteen guiding characteristics, and to explore the "nature and boundaries" of AR (Sadowsky 2007: 16).

According to Herr & Anderson (2005) most agree on the following description:

> *Action Research is an inquiry that is done by or with participants but never to or on them. It is a reflective process, but is different from isolated, spontaneous reflection in that it is deliberately and systematically undertaken and generally requires some form of evidence be presented to support assertions. It is oriented to some action or cycle of actions that participants have taken, are taking, or wish to take to address a particular problematic situation.*

Eden & Huxham (1996) identified the intent to effect social change in actual practice the most elementary feature in action research, with a researcher highly interacting with the subject to research and the purpose to incorporate the change into the research process itself (Easterby-Smith *et al.* 1991). Robson (2003) states its core elements as being

- the researcher's involvement in a "natural" setting,
- a cyclical (iterative) research process,
- and emphasis on understanding context.

Whyte (1991) describes "participatory action research" as laying its focus on empowerment and emancipation through enhanced awareness of the need for groups to transform their lives and social conditions. The relationship between the researcher and the researched is essential to AR. There is a close collaboration between the researcher and the participants (Robson 2003; Herr & Anderson 2005). While the researcher may be considered an expert in his field, AR provides the

opportunity to learn and thus to refine and develop one's own systems and skills (McNiff & Whitehead 2011).

According to McNiff & Whitehead (2011) the validity of AR is based on comprehensibility, truthfulness, sincerity and appropriateness. The traditional approach to AR advocated by Lewin (1947) in contrast emphasises theory building, ensuring transferability, and the need for triangulation and validity (Eden & Huxham 1996). This study follows the approach to AR advocated by McKniff & Whitehead (2011).

The aim of this study is "to develop theory to inform a more reliable and robust development of practice" (Eden & Huxham 1996: 531). Consistent with the critical realism paradigm, AR must demonstrate the connection between outcome and a particular method or tool, and it must explain its relation to relevant theory. Within each case AR is chosen as the primary research methodology, because it is appropriate for exploring novel and complex research phenomena. This study follows the general precepts of AR. "The action research strategy is to develop theories within the practice context itself, and to test them through actual interventions" (Argyris & Schon 1991: 86).

This study agrees with Eden & Huxham (1996) who postulate that AR "can build and extend theory of more general use" (Eden & Huxham 1996: 530), with an emphasis lying on the comparisons done, not on the single cases.

Criticism of Action Research

Among those schooled in positivist approaches action research has produced a great deal of mistrust. Argyris & Schon (1991) discuss a choice between rigorous scientific positivist approaches, and action research. They suggest a choice between a rigorous and a non-rigorous approach.

According to Eden & Huxham (1996) critics of Lewin's pioneering work noted difficulties of measuring outcomes and controlling contextual variables using his methodology. Elden (1979) describes action research as allowing valid conclusions, corresponding with Thomas's (2011a) "local knowledge" in CS only as "local theory". This "local theory" can only be applied to the context studied, producing non-replicable and not-generalizable results. It is sometimes critiqued for a perceived

lack of scientific rigour and for its general focus on problems and negative issues of phenomena (Aguinis 1993; Thomas 2011).

Easterby-Smith et al. (1991) argue that action research is relying on collaboration and seeks change, and therefore participants are likely to learn a lot from the process itself, and their interest may be more in "what happens next" than in a formal account of the research findings. Avison et al. (1999) state that action research lacks guidelines in terms of design, process, presentation, and evaluation criteria, and therefore may be somewhat vague and fluid and potentially vulnerable for bias.

Praise of Action Research

Studying an organisation longitudinally and writing up the findings in form of narrative results may demonstrate how understanding changes and develops over time. For Easterby-Smith *et al.* (1991) this is an advantage of AR. Eden & Huxham (1996: 530) dismiss Elden's (1979) concern about a "local theory" by postulating that "the general theory derived from action research must be applicable significantly beyond the specific situation". McNiff & Whitehead (2011: 6) refer to AR as a "form of professional learning", which is undertaken by the practitioner "for the purpose of helping to develop their practice" (Thomas 2009: 112).

Herr & Anderson (2005) consider that action research is highly effective in cases of collaboration between parties, where each party has a stake in the problem under investigation. Though criticising a possible lack of rigour, Aguinis (1993) argues that AR provides a scientific method in fact-finding and problem solving, with the only notable difference being the researcher's active role in the action research process. McGill's (2010) study explores the use of executive coaching in the international context with the primary researcher acting as one of the coaches involved in the study. According to McNiff & Whitehead (2011) AR is a fully acknowledged research methodology, with "its own criteria and standards of judgement" (McNiff & Whitehead 2011: 50).

Appropriateness of Action Research

This study aims to gain a detailed understanding of the effects the coaching interventions have on the team members, teams and the project environment by

examining aspects of it in detail. So one part of the study focuses on how to adapt coaching methods, tools and techniques, focussing rather on the coach and researcher himself than the coachees. The object of enquiry is the researcher.

McNiff & Whitehead (2011) refer to this approach as self-study action research. Action research (AR) is considered by Denzin & Lincoln (1994) and others (Strauss & Corbin 1990; Robson 2003) a special kind of CS that has become increasingly prominent (Strauss & Corbin 1990). AR as a methodology differs from pure CS research by satisfying the criterion of combining action with research (Herr & Anderson 2005; McNiff & Whitehead 2011).

Action research helps to develop practice and empower practitioners (Thomas 2009, 2011), designed to ensure that research is connected to real situations by improving practice and generating explanations for events that occurred (McNiff & Whitehead 2011).

3.2.4 Grounded Theory

Strauss & Corbin (1990) define a theory derived from data, which was systematically gathered and analysed through the research process, as grounded theory. The central features of grounded theory are its concern with the development of theory out of data using an iterative process (Bryman & Bell 2011).

The task of a practitioner-researcher is to show how to connect educational theorising and practice improvement (McNiff & Whitehead 2011). Charmaz (2006) distinguishes educational theorising between positivist theorising and interpretative theorising.

Positivist theorising views its concepts as variables and operational definitions for hypothesis testing through "replicable empirical measurement" (Charmaz 2006: 126). Interpretative theorising conceptualises "the studied phenomenon to understand it in abstract terms" (Charmaz 2006: 127), and offer an imaginative understanding of it. Therefore, theory building in AR must be adjusting to changing circumstances (McNiff & Whitehead 2011). It must be oriented to some action or cycle of actions that participants are taking, and therefore has to be incremental and iterative (Herr & Anderson 2005).

Because AR was designed to expand, enhance or test the application of (Charmaz 2006) rather than delivering fundamentally new theories (Eden & Huxham 1996), grounded theory according to Glaser (1992: 16) is "a general methodology of analysis linked with data collection that uses a systematically applied set of methods to generate an inductive theory about a substantive area."

According to Bryman & Bell (2011) the term grounded theory is sometimes used by authors to imply that the analyst has grounded his or her theory in data. But according to them grounded theory is more than that. Grounded theory is based on using a certain toolset in collecting, analysing and interpreting the data. According to Glaser (1992) grounded theory was developed to be more than just a method for collecting and analysing data. It was initially meant to be a complete research methodology.

Charmaz (2006) concretises that there is a considerable controversy about distinct views on grounded theory. Glaser's initial approach involves the researcher as directly interacting with the research subject to generate data. Glaser's approach to grounded theory prefers to start completely open minded with the purpose to emerge theory based on neutral questions (Glaser 1992). In Glaser's approach the researcher is rather passive, and reveals the theory from less rigorously structured data. The following process of constant comparison of the data collected leads to the finding of various indicators, concepts and categories (Glaser 1992). Strauss & Corbin's view on grounded theory is in so far more pragmatic as they also take in consideration the characteristics of mainstream research, the role played by the researcher's experience and the use of literature (Strauss & Corbin 1990). They encourage an approach to grounded theory which forces the theory by formulating structured questions, basing on general ideas of where the research to begin. In so far they propagate grounded theory basing on a less open mind than Glaser does. According to Strauss & Corbin (1990) the theory is not grounded in the data alone, but interpreted by the observer. To do so, the researcher is proposed to be actively involved in the research, generate structured data and follow a rigorous approach to coding to reveal the theory.

Glaser (1992) critiques the use of literature and predetermined coding schemes as limiting the depth of data sources and delaminating the identification of relevant themes.

Bryman & Bell (2011) appreciate Glaser's original approach, but prefer Strauss & Corbin's pragmatism. According to them grounded theory involves the iterative process of reading and re-reading the data gathered to identify potentially relevant data and their associations. If carried out correctly, the process produces a theory based on grounded data (Charmaz 2006). The nature of the study falls into place with the pragmatic approach as advocated by Strauss & Corbin (1990).

According to Bryman & Bell (2011) grounded theory excels in the usage of theoretical sampling, coding, theoretical saturation and constant comparison of the data gained. These concepts will be highlighted in the following chapters.

Theoretical Sampling

The general purpose of all research is to generate new knowledge (McNiff & Whitehead 2011). Critical realist methodologies recognise patterns, tendencies and social mechanisms in social phenomena (Miles & Huberman 1994; Robson 2003). According to Thomas (2009) interpretative researchers are expected to find different results and draw different conclusions, as every researcher interprets data basing on his/her personal background, know-how, experience and idiosyncrasy. To gain validity in AR/CS, McNiff & Whitehead (2011) the results must be truthful with a high degree of comprehensibility, sincerity and appropriateness. Herr & Anderson (2005) suggest the usage of the term credibility in AR as equivalent to validity for positivist research.

The critical realist emphasises social mechanisms. Theory building provides the conceptual tools to abstract the transferable, theoretical element of the research (Miles & Huberman 1994). This study is not sampled from a general population. Yin (2012) states that interpretative research follows the logic of replication, not sampling. The literature generally views AR as context-specific (Eden & Huxham 1996; Herr & Anderson 2005; Thomas 2011a; McNiff & Whitehead 2011), with the minimum aim to develop "local theory" (Elden 1979). Restricting the study to a small population allows the facilitation of a more in-depth investigation, while limiting the representativeness of the study. Seeking pertinent data to develop an emerging theory is referred to as "theoretical sampling" (Charmaz 2006; Bryman & Bell 2011).

According to Charmaz (2006) the main purpose of theoretical sampling "is to elaborate and refine the categories constituting your theory" (Charmaz 2006: 96). Theoretical sampling is conducted by sampling with the purpose to develop the for the research required categories until no new properties emerge.

Comprehensibility

When the process of collecting and analysing data is replicable, it must at least be comprehensible to others. Eden & Huxham (1996) demand the researcher to spell out his "method of exploration" (Eden & Huxham 1996: 534). Throughout this study the research strategy and methods are declared to aid comprehensibility, and enable transferability by lying emphasis on comparisons between CS done.

Truthfulness

Truthfulness is attained through prolonged involvement in the study, and maintaining a full audit trail (Robson 2003). In AR an initial theory informs action, which then feeds into the theory. This on-going cyclic process generates further refinements of action. The reflection of the consequences initiates the next action cycle (Thomas 2009). Like coaching is a cyclic process, in this AR study theory building is incremental. Feedback from the earlier phases of research will be utilised to determine further development of the research. This incremental design gives the study, which is led by the context and the people acting within, the rigour and discipline of research.

Sincerity

Sincerity in AR/CS is gained by using the most commonly used sources of evidence: documentation, archival records, interviews, direct observations, participant-observation, and physical artefacts (Yin 2009). Eden & Huxham (1996) advocate approaching the research question from as many angles as possible to ensure valid conclusions. According to Yin (2009) triangulation by using multiple sources of evidence is the strength of AR/CS, allowing the researcher "to address a broader range of historical and behavioural issues" (Yin 2009: 115). As the various sources are highly complementary and no single source has advantage over the others, this

study wants to use as many sources as possible. In this study records of observations, interviews and semi-structured interviews with participants will be kept to generate multiple perspectives.

Appropriateness

Eden & Huxham (1996) propose four criteria to gain appropriateness of AR conclusions:

1) Justification of AR methods and design,
2) Documentation of data collection and analysis,
3) Implementation of a cyclical process of theory and actions,
4) Comprehensibility through declaration of all aspects of the research.

This study adopts methods of recording and analysis that help reducing bias and subjectivity.

Coding

Coding refers to breaking down collected data into component parts, which are given names. The coding reflects how data were selected, separated, and sorted to begin an analytic accounting of them (Charmaz 2006). Bryman & Bell (2011) refer to coding as one of the most central processes: "It entails reviewing transcripts and/or field notes and giving labels (names) to component parts that seem to be of potential theoretical significance and/or that appear to be particularly salient within the social worlds of those being studied" (Bryman & Bell 2011: 578). In Contrast to Glaser (1992) Strauss & Corbin (1990) claim a rigorous approach to coding to reveal the theory.

Strauss & Corbin (1990) distinguish between three types of coding practice, which describe the flow of coding (Figure 3-3).

Open Coding

Collected data are broken down, examined, compared, conceptualized and categorized in a rigorous process (Strauss & Corbin 1990: 61).

Axial Coding

Data are “put back together in new ways (..) by making connections between categories” (Strauss & Corbin 1990: 96).

Selective Coding

The core category is selected and systematically related to other identified categories. These relationships are then validated and categories are identified that require further refinement and development (Strauss & Corbin 1990: 116).

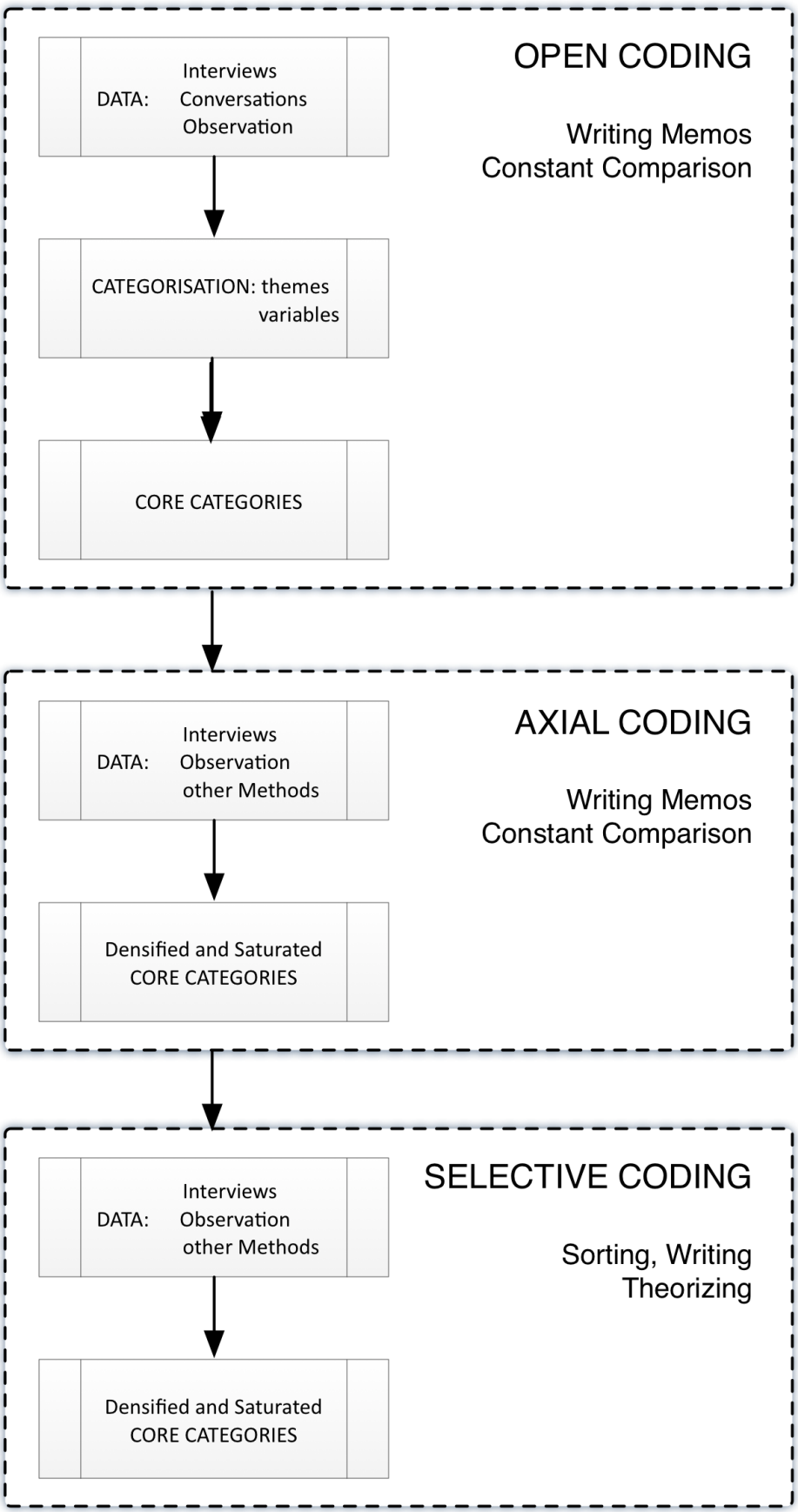

Figure 3-3: Coding (based on Strauss & Corbin 1990)

Theoretical Saturation

Theoretical sampling is done until a category has been saturated with data. Bryman & Bell (2011) call a category saturated, when no new or relevant data emerges in a well-developed category, which is according to Strauss & Corbin (1990) in terms of its properties and dimensions demonstrating variation, and has well established and validated relationships to other categories.

Constant Comparison

The constant comparative method is the basic method of interpretative inquiry (Thomas 2011a). It indicates an on-going approach of comparing data with data from the beginning of the research (Charmaz 2006). Comparative methods lead research through coded data again and again, by comparing each element with all other elements. The elements are inspected in sets to see whether they fall into clusters or groups that share patterns or configurations (Miles & Huberman 1994).

Data regarding relationships between individuals and their interactions are furthermore set into relation using sociometric analysis. Sociometric analysis is a way of graphically representing and visualising social behaviour (McNiff & Whitehead 2005), and exploring areas of required change.

Using constant comparison helps keeping the connection between data and conceptualisation (Bryman & Bell 2011), and "enjoins the researcher constantly to compare phenomena being coded under a certain category so that a theoretical elaboration of the category can begin to emerge" (Bryman & Bell 2011: 577).

3.2.5 Data Collection

While coaching and project management as well as team coaching are delineated extensively in the literature, coaching interventions conducted by the project manager are not. Data collection lays foundation for developing a model or framework from a case study that explains the subject of research - "building a theory" (Thomas 2011a).

In qualitative research triangulation is crucial (Eden & Huxham 1996; Denzin 1989). To achieve triangulation this study uses a variety of data sources and employs

multiple methods of observation. The data provided used for triangulation are group observations, semi-structured interviews with team members and stakeholders, workshops and stand-up meetings, informal conversations throughout the organisation and available process and project documentation.

The primary source of data was on-going observation. The observations were noted in coaching notes taken immediately after data generation. Besides covering specific coaching interventions these coaching notes also covered internal events, like team meetings, presentations, discussions, and casual conversation. Emerson *et al.* (1995: 9) describe this data source as "field notes".

> *"Field notes are products of and reflect conventions for transforming witnessed events, persons, and places into words on paper" (Emerson et al. 1995: 9).*

The secondary source of data was taken from feedback sessions and semi-structured interviews. The team and the individuals regularly reflected on the change of the team behaviour and individual contribution to team performance. To conduct semi-structured interviews a list of key themes, issues, and questions was covered, which was derived from the coaching cycles. The third source of data was formal and informal contact with observers of the teams. Feedback from board members, line officers and managers was obtained in feedback sessions. The feedback collected from third parties provided guidance and helped determining whether the project teams were developing into the right direction.

As stated above AR is sometimes criticised for a potential lack of rigour. Therefore, the effort to gain information from team members and third parties was critical. The data recorded from the study's sources then needed to be processed for analysis. It needs to be corrected, edited, typed up or transcribed (Miles & Huberman 1994).

3.2.6 Data Analysis

After data correction, editing, typing up and transcribing (Miles & Huberman 1994), in case of this particular study translating as well, analysis of the data was conducted. The first step in data analysis supported conceptualisation. Data collection followed an iterative on-going process, repeating three steps of coding the data: *open coding*,

axial coding, and *selective coding*. New data was compared to already coded data and lead to new categories and inter-categorical connections.

The results, effects and impacts of the coaching interventions were analysed in a coaching effects matrix (see Appendix A), basing on the effects matrix presented by Miles & Huberman (1994).

Conceptualisation

The purpose of coding collected data lies in revealing underlying concepts. The first focus for gathering data lay on initial interviews, conversations and observations, to give a very rough first glimpse on the coaching need of the team and the expected impact for the organisation. Based on the initial open coding a sociometric analysis to map the relationships between the team members (Thomas 2009; 2011a; McNiff & Whitehead 2005) was drawn to identify the possible need for interventions influencing the organisation's behaviour. Collected data was analysed immediately using a constant comparative method (Thomas 2009; 2011a) to make the right decisions about the next steps in the project team coaching cycle and render more precisely the concepts identified in the open coding.

From these immediate analyses and the sociogram the decisions on how to conduct the next coaching interventions were drawn. This decision-making process was mainly based on the researcher's experience and knowledge of coaching tools and techniques. Its effects were analysed in the second step of analysis. It is important to note that personal experience and qualification of the researcher is a possible source for bias.

Secondly, a deeper and more reflective analysis was conducted. The recordings from the field notes and the project diary were condensed, categorised and re-organised, after the connection was made between categories. Axial coding (Strauss & Corbin 1990) reveals, as the CS progresses, the most important independent and dependent variables. The third cycle of coding focused on selecting and validating the relations between core categories and "filling in categories that need further refinement and development" (Strauss & Corbin 1990: 116). The selective coding to identify categorical connections and relations was supported by case dynamics matrices (Miles & Huberman 1994). A case dynamics matrix helps the analyst during and

after data collection to link data with explanations. The case dynamics matrix "displays a set of forces for change and traces the consequential processes and outcomes" (Miles & Huberman 1994: 148).

Conceptualisation is done iteratively during each CS, leading to a state of theoretical saturation and a set of interrelated categories filled with data linked with explanation. To link the findings from several CS and identify directional relationships of the coaching interventions cross-case analysis (Miles & Huberman 1994) was conducted.

Cross-Case Analysis

Yin (2012; 2009) refers to multiple case study approaches as cross-case analysis due its comparative character. Miles & Huberman (1994) suggest enhancing generalizability through cross-case analysis to "develop more sophisticated descriptions and more powerful explanations" (Miles & Huberman 1994: 172) and to approve that events and processes described in one case study are not wholly idiosyncratic.

Using case dynamics matrices helps finding the core list of variables to have significance across several cases. Doing a cross-case analysis with this list is a "way to move from case-specific explanations to findings that bridge to the discovery or reinforcement of constructs" (Miles & Huberman 1994: 228). The single cases are chosen because they are "claimed beforehand to have (..) an positive outcome" (Yin 2012: 195). The analytical frame is given by the comparison (Thomas 2011a). At the same time local particularities can be identified and taken into account. The way leads from local causality to clusters of cases sharing important attributes. If the cases "corroborate one another, the findings can be considered to be more robust" (Yin 2012: 195).

Comparative analysis of all cases, using variables estimated to be the most influential in accounting for the outcome or criterion is referred to as cross-case causal networking (Miles & Huberman 1994). The idea is to create a meta-network derived from the individual case networks.

3.3 Research Ethics

To conduct coaching from the position of the project manager the researcher has to become a member of the organisation and get into the centre of the project. This approach to ethnography (Stake 2000) bears some ethical risks to be considered. As Coach and project manager the researcher is directly involved with the people coached and the organisation the people interact with. As project manager the researcher is involved in strategic operations of the company and gains access to data, which may not be designated for public knowledge. As coach he discusses personal issues and concerns and identifies strengths and weaknesses in the project organisation and the competence of the individuals.

Coaching, due to its personal character, is based on a relationship of trust. It will not work under the menace of revealing agreed courses of action with the coachee. The data collected from the position of the project manager, the sociometric maps created and case dynamics matrices developed under all circumstances have to remain confidential. Revealing personal information, or allowing for conclusions leading to individuals will demolish the coaching relationship required.

The aim of the study is to build a theory about the impact of coaching in project management. The focus does not lie on the details of a single case, but the principles, the phenomenon behind it. Therefore, it is not important for the study to make companies or parties involved recognisable. In order to respect the sensitive and personal character of the data collected, the researcher decided to make any data anonymous by using acronyms in coding and data representation. Furthermore, companies and departments were not called by their real names. Instead abbreviations were used, which allowed unambiguous assignment for the researcher but do not allow for immediate identification.

The researcher was aware of the prerequisite to gain permission to collect, analyse, interpret and possibly publish data. Unfortunately, the nature of the research as an approach to coaching did not allow for gaining all permissions before the coaching interventions were conducted, as the possible denial of a single person could have compromised the complete endeavour. For that reason, the researcher decided to conduct the study and inform every person affected by his research afterwards. He guaranteed that no information or analysis or conclusion drawn from the data

collected could be traced back to participants in the study. Any data collected from individuals who refused to permit the data usage were deleted and not taken in further consideration. No data was used against gained permission.

The research was conducted in accordance with Heriot-Watt University policy.

CHAPTER 4: Pilot Study

The following report is based on the pilot study conducted at the web development department of a major German direct insurer, which will be referred to in the context of this thesis as large direct insurer (LDI). With 1.9 billion Euro insurance contribution and nearly 2 million customers, LDI is one of Germany's largest direct insurer. It was setup in November 2012 and aimed at optimising the online sales channel for mobile and stationary devices. The researcher was involved in the role of the project manager during the initial planning phase of the project to introduce "Responsive Design" to LDIs E-Commerce website.

4.1 Study of Context and Needs Analysis

The pilot study was conducted as a longitudinal study from January 2013 to April 2013. The company and individuals involved in this process understood and agreed that the researcher had to collect data and information to conduct coaching interventions. Due to the sensitivity of the data, its publication had been agreed in an anonymised form only. Therefore, the acronym LDI will be used for the company.

A narrow focus was chosen for the pilot study. Instead of considering all units involved in the project, the researcher conducted the pilot study focusing on the CMS team and its manager. Following Miles & Huberman (1994) the researcher began listing a wide range of possible issues for investigation. The initial set of issues identified through interviews, conversations and observation was identified as

- Goal setting
- Leadership of the team
- Team performance and conflict

During the project was progressing a deeper understanding of the issues evolved and coherences between issues and people became clearer. The initial set of assumptions was changed as the pilot study progressed. Early assumptions were discarded and superseded by issues, which had originally not been anticipated.

4.1.1 Study of Context

The pilot study was conducted from January 2013 to April 2013 in the planning phase of a software development project, focussing on the redesign of the LDI website. Initially the planning phase was set up for eight weeks, beginning January 8th 2013, ending February 28th 2013. Implementation start was planned for March 2013.

LDIs e-commerce web site had to implement the concepts of "Responsive Design", which has an impact on production processes. The purpose of the planning phase lay on analysing the Content Management System (CMS) to identify and evaluate technical changes and to assess organisational changes. The gathered results summed up to the overall scope and were to be translated in project planning. The pilot study's focus lay on the CMS team of the relaunch project, which consisted of two internal developers and two consultants to support and advise.

Organisation

The web department is composed of a marketing and a technical unit. Marketing drives the project as requester of business requirements, while the technical unit is responsible for executing and delivering new features and technical products.

The software delivery is organised in two general ways. There are monthly release cycles which allow LDI to roll-out minor updates, small features, or quick responses to market challenges every four weeks. Major changes require affecting the business logic or technical architecture require a software roll-out. This is independent from the monthly cycle and require more effort in planning and testing.

Subject to the pilot study was the team of developers responsible for CMS architecture, design and development.

People involved

Subject to exploration in this study were five people permanently involved in the CMS development. Two internal and two external developers covered the range from formulating requirements to implementation of software artefacts. Within this group of people communication caused a tension that lead to conflict in nearly every single conversation they had as individuals or in the group. The tension was so omnipresent

that even people not involved in the project noticed it. The fifth person to be taken in consideration in terms of this pilot study was the head of the e-commerce department, who was superior to the two internals and client to the two externals. He also actively managed release cycles of online products, which directly competed with projects like the CMS project.

The researcher decided on conducting introductory interviews, as Yin (2009) marked the interview as the most important source of information in a case study.

TUL - the Technical Unit Leader

TUL was at the time of the study 31 years old. Working for LDI was his first opportunity for gaining managerial experience, because of his affinity to internet technologies and project management. Besides managing the department, he was responsible for running release cycles requesting the same resources at the same time.

iDev1 - Lead Developer for the CMS

iDev1 is at the time of the Study 51 years old. He was software developer when the actual CMS was introduced in 2003. He was considered lead developer and architect for the CMS by TUL.

iDev2 - Software Developer

At the time of the Study iDev2 is 33 years old. He started working as developer for LDI while gaining his university diploma. Due to his ongoing involvement in web development projects he was first choice for the newly found e-commerce department.

eDev1 - External Developer

eDev1 is at the time of the Study 39 years old. He is an external expert for software architecture and implementation of the CMS. His range of knowledge also covers experience in “Responsive Design”.

eDev2 - External Developer

eDev2 is at the time of the Study 34 years old. She is a certified trainer for the CMS. Her expert knowledge covers general knowledge about architecture and implementation strategies for the CMS.

4.1.2 Needs Analysis

The researcher began listing a wide range of issues for investigation and narrowed it down (Miles & Huberman 1994) by drawing the decision to focus on the CMS team and conducting initial semi-structured interviews with the four developers and their manager.

Besides the information drawn from the interviews the researcher added detail by writing memos on his observations. From this the possible scope for project management-by-coaching was identified and sharpened by in-depth discussions with each individual. The top three issues hindering an increase in team performance identified were:

- Unclear goals
- Misleading leadership of the team
- Conflicts on personal and team level

Goal Setting

The main goals that drive any project activity are the goals derived from the project's scope and set the main course of action. The project goals have to be broken down to tasks, estimated, sequenced and finally scheduled in a planning document by the project team.

Ambitious project goals often bear personal challenges for the team members, which may provide a fruitful field for coaching. TUL considered the project a chance for iDev1 to transform into a lead developer, because he considered challenging others an appropriate way to increase the individual's level of competency. Advanced training was not stipulated by TUL and iDev1's claim for training within industry was ignored and declared dispensable.

Due to his inexperience as lead developer iDev1 interpreted responsibility as having to be involved in all decision processes. eDev1 as expert found himself in the situation of having to provide explanations and justifications regarding the basic and core elements of the CMS. He experienced this situation as so frustrating that he was thinking about quitting the engagement. eDev2 was not willing to except this set-up

and quarrelled with iDev1 at any occasion. To avoid hassle iDev2 remained silent and restrained from sharing his opinion and appraisal.

Leadership of Team

TUL as technical unit leader was head of the e-commerce department of LDI. Besides his managerial role he was also involved on the operational level as delivery manager for the monthly release. In this function he was actively competing with the project for resources. In his role as senior manager he was responsible for aligning available resources with projects and releases and solve upcoming conflicts regarding limited resources.

More than once TUL leveraged his dual position to allocate resources to his releases without respect to the project's requirements. He was perceived unable to recognise and understand moods and emotions raised by his preference for the releases, and appeared to be incurious in the project and the conflict he provoked between himself and project manager. Furthermore, he was disappointed as he expected to be made project manager of the prestigious re-design project but was declined due to LDI's policy regarding project management.

Team Performance and Conflict

The planning phase beginning January 8th 2013 was intended to be finished after eight weeks with implementation beginning in March 2013. The time frame and plan for this period was predetermined by TUL and communicated to his manager as established and undoubtable.

TUL's planning scheduled the processes as follows.

Week 1: Set-up infrastructure for all team members

Week 3: Present architecture and list of affected systems

Week 4: Decide for "Responsive Design" framework

Week 5: Present initial set of estimated activities

Week 6: Present new template structure for CMS

Week 7: Identify and estimate architectural dependencies

Week 8: Provide project schedule and testing strategy & plan

In early conversations iDev1 declared that he had warned TUL that this plan was too ambitious and hard to abide. Beginning on January 8th 2013 it took several days until all team members had access to required resources so that the project according to TUL's plan started with a delay of one week. After being confronted with the initial delay TUL and his supervisor imperturbably insisted, that the delay could be caught up in one of the next weeks.

An initial set of estimated activities was only presented in week seven by iDev1, disclosing that eDev1 and eDev2 had not been involved in the process. Being confronted with the list of activities they identified technical weaknesses and proved that the whole concepts did not address the challenges of "responsive design". In week eight eDev1 and eDev2 showed satisfactorily that activities needed to be re-defined and planning was required to be re-worked.

From this situation several conflicts emerged. These conflicts were conceptualised by the researcher based on interviews, conversations, discussions and email. For validation purposes the concepts were discussed and rendered more precisely with respect to the top three issues hindering team performance identified with the involved parties.

TUL and the Project Manager

Although informed about delays and warned about the tight planning, TUL insisted on the plausibility of his plan. The hint that the plan was hard to meet even if all resources were available, did not detain TUL from allocating required resources to other tasks. He furthermore spread the information that all delays could have been avoided by assigning an internal project manager to the project. It was revealed that TUL had an interest in failure of the project.

iDev1 and eDev1 & eDev2

eDev1 and eDev2 perceived a great deal of suspiciousness regarding their proposals and ideas. Whenever they tried to share concepts basing on their experiences regarding the architecture and approach, it was declined in lengthy and unproductive discussions. The team spent hours in meetings and discussions without finding agreed solutions and internal decisions had not been shared and aligned with the work of the external developers.

TUL and iDev1 & iDev2

TUL acted in two roles; firstly, as business unit lead located in a superordinate position, and secondly as release manager on the same hierarchical level as the project manager. Whenever the argument of the release manager failed to convince or was not strong enough, the business unit lead issued a command. iDev1 and iDev2 had to support the release team on short notice, regardless of their duties on the CMS project.

Overall the team performance and effectiveness was very low, as the team had to act in a constant state of conflict.

4.1.3 Plan of Intervention

The study was designed as grounded theory multiple case study implementing an action research approach, designed as an ethnographic study. The needs analysis was the first result of data collection and processing. It identified the major fields for coaching set the course of action for further data collection and processing.

The choice for methodology was made in accordance with Greif (2010) before the pilot study commenced, based on the theoretical considerations done in the literature review. In accordance with Strauss & Corbin's (1990) understanding of grounded theory, the initial methodology and research question was derived from literature and acknowledged with the data collected. But during the needs analysis a set of more general aims needed to be set out, to verify the approach of a researching project manager. The data collected from interviews, workshops, and observations in form of memos, notes and protocols was typed up, corrected and edited (Miles & Huberman 1994) and analysed in nearly daily iterations.

Introduction of Coaching

The researcher presented himself as an educated business coach who was about to implement coaching techniques in project management, while collecting data regarding its effects. While the external team members were very open minded to the approach, the internals remained sceptical. In a meeting where the possible coaching intervention was discussed it became apparent that a growing understanding of coaching increased mistrust between internal and external team members and the

researcher. The practical consequence of this reaction paired with the time constraint of the project phase, was to design the coaching intervention more experimental in a less structured format.

Focus of Coaching

The continuing comparison of the collected data from the forgoing discussions and workshop set the course of action and the strategy on how to proceed in the project. The interviews conducted from day one on January 7th 2013 had been noted and transcribed in memos (see Appendix A).

From constant comparative and indication from the needs analysis two potential foci for the coaching revealed: a narrow focus on the relationships within the team, or a wider focus on the issues of TUL's leadership qualities and skills and his influence on the team. While not mutually exclusive, these foci were quite distinct and had significant implications for the aims and the delivery of the coaching. The researcher decided to focus the coaching interventions on the team's inner interactions, while recording TUL's influence as basis for a possible later examination.

Quality of Communication

To increase the quality of communication and decrease the time loss and pressure resulting from unproductive communication, a set of one-on-one coaching sessions and workshops was proposed to cover rules on how to provide valuable, conflict free feedback to others and how to formulate and discuss goals. Furthermore, any conflictual discussion was moderated by the project manager to keep it time-boxed, focused and factual. This created a controlled environment in which knowledge could be transferred and evaluated within the team.

Decision-Making

The process of efficient decision making was weak. IDev1's inexperience and being unsupported by the management, made him conclude that it was up to him to draw any decision. In fields where he was not qualified to decide, he avoided to do so. To strengthen iDev1's decision-making ability the researcher planned to conduct one-on-one coaching with him. The intend was to clarify the difference between accountability and responsibility, and support iDev1 in delegating tasks.

Provide Confidence

The potential for conflict within the team was very high. The external developers felt rejected regarding their areas of expertise. The internal developers felt threatened by the external's proposals, as they feared that these would undermine their competence.

The intend of the coaching lay in clarifying the participant's role, agreeing on responsibilities and accepting fields of expertise by the team.

Receiver of Coaching

The researcher conducted five one-on-one interviews, where the team members rated the impact of the others as being "productive", "neutral" or "non-productive", with the following underlying definitions had been agreed:

- Productive: the person is very active, a social and/or technological driver, without whom the project phase under the given time pressure and constraints could not be closed successfully
- Neutral: the person is passive and not very passionate. S/he needs regular triggering to support the project and deliver valuable results.
- Non-productive: the person is active, but a social and functional obstructer, who is a direct threat for closing the phase successfully

The appraisals given by the team members were displayed in the following sociogram:

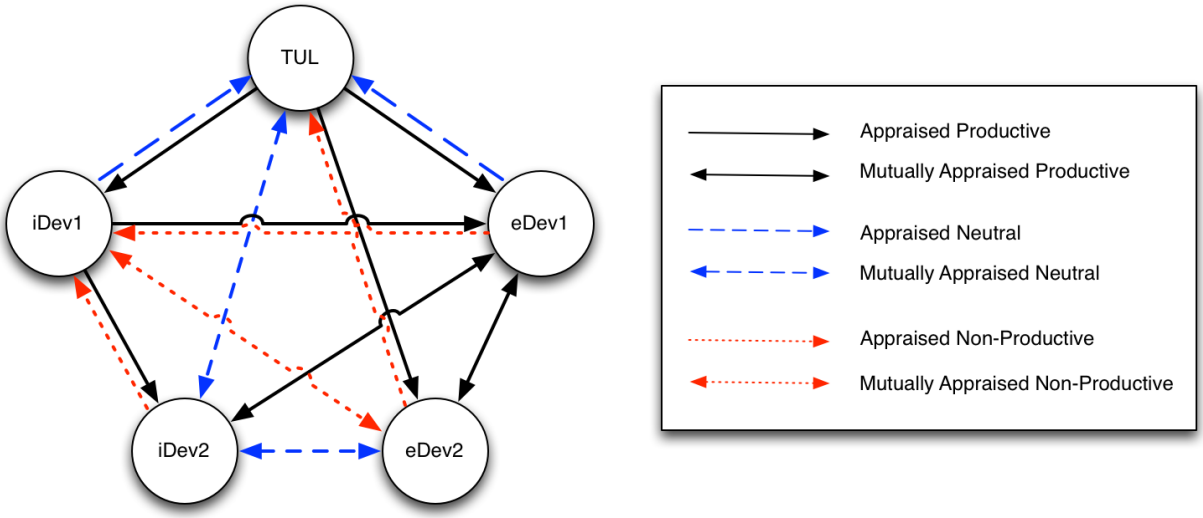

Figure 4-1: Pilot Study Sociogram (developed by Author)

eDev1 was appraised productive by all team members and TUL. He and iDev2 were the only two team members, which were not appraised non-productive by any other team member.

iDev1 was appraised non-productive by all other developers. He and eDev2 could not stand each other and were not able to solve any problem without raising conflicts. TUL was the only one appraising iDev1 productive.

Based on this sociogram the researcher made the decision to conduct individual coaching sessions with the internals iDev1 and iDev2, while eDev1 and eDev2 were supposed to receive coaching regarding team development as a group. The initial intent to conduct coaching interventions on TUL was discarded by the researcher when in-depth discussions revealed that he was unwilling to solve the conflict he had a major influence on.

4.1.4 Pilot Research Methodology & Question

Grounded theory approaches generate theories directly from the data gathered (Charmaz 2006) and do not necessarily require a pilot study. The initially intended methodology for the study was supposed to provide an analytical frame by comparison (Thomas 2011a). Comparing multiple cases through comparative analysis, using variables estimated to be the most influential in accounting for the outcome or criterion, was planned to create a meta-network derived from the individual case networks. Cross-case causal networking (Miles & Huberman 1994) raises the meaningfulness and significance of the findings (Yin 2012).

The assignment with LDI was intended to be one of multiple case studies to be considered for cross-case analysis. Changes in assignment in the following commissioning allowed the researcher to coach on four projects within one organisation under comparable conditions. Thus, the LDI project turned into a pilot study, with the purpose to justify the general concepts to help adjusting the main study in an early stage. The research question for this study was:

> *How does project management-by-coaching as leadership-style of the project manager contribute to project team performance in German software development projects?*

The pilot study was viewed as exploratory single sample case study, implementing an ethnographic action research approach, following the grounded theory methodology. Data collection and analysis was done using a case dynamics matrix (Miles & Huberman 1994) to identifying topics to focus on.

The research question for the pilot study was the same as for the main study, but a set of underlying questions was formulated to indicate the suitability of research question.

Underlying pilot research questions:

- Is the external project manager deep enough embedded in the project organisation to generate data ethnographically?
- Is the data derived from the project manager position ethnographically rich enough for both: managing the project and deriving theory regarding the PM leadership-style?
- Do software developers accept a coaching project manager?

4.2 Coaching Details

This section begins with a report of how the coaching intervention was conducted and what challenges evolved during the process. In the second part the data collection and processing as performed in the pilot study is described. After that follows a brief description of the major themes identified during the coaching cycle and a reflection on possible limitations of the pilot.

In the data collection and processing section a major focus lies on reviewing methods of data retrieval and testing the different tools for processing and analysis. It turned out that some of the methods proposed for the study were not practical for use and rather reduced the explanatory power of data instead of enriching it.

The primary objective of the pilot study was rather targeted on tools and methods of coaching, than identifying general fields of coaching in conflict-ridden software development projects. The purpose of the pilot study was evaluating the suitability of the methodology for data collection and processing for the the validity of the case study approach of the planned main study.

4.2.1 Coaching Intervention

The constitution of the project influenced the selection of people to be coached. As the planning phase did not require co-working the researcher decided on the CMS team to focus the coaching on.

The primary objective was to explore if the project manager in the function of the coach allows to embed deep enough into the project organisation to derive ethnographical data. The coaching sessions were used as benchmark to help tailoring further coaching interventions on teams, adjust methods of identifying hidden conflicts and identify tools for measuring the impact and success of the coaching intervention.

The secondary objective of the pilot study focussed on iDev1's expected development towards his new role. To help him develop into this new role a one-on-one coaching was proposed. Working with iDev1 targeted at adjusting the coaching approach towards gaining a more more effective mode of operation.

The third objective focussed on providing a solution for the conflicts between iDev1 and eDev1 & eDev2, and was mainly set by the researcher to assess the proposed method of data collection and analysis. Coaching all three individually at first required highly different structured coaching sessions, driven by individual needs. After having agreed a joint topic between eDev1 & eDev2, they received a group coaching, were needs for the team were broken down into individual actions and individual goals to be reached to support the team goals. In the last month of the coaching iDev1 was finally included into this group, which required a major alignment for the coaching sessions.

4.2.2 Data Collection and Processing

The sources of data used for the pilot study were primary field notes, coaching notes taken after coaching sessions, team meetings, discussions, and casual conversation. The secondary source of data was taken from feedback sessions, interactions within the team, and interaction with the organisation. The third source of data used for triangulation was formal and informal contact with observers of the teams. The literature confirms six commonly used sources of evidence: documentation, archival

records, interviews, direct observation, participant observation and physical artefacts (Yin 2009; Thomas 2011a).

After three major issues for investigation had been identified, the researcher set out the aims and method for the action research. The data collected had been typed up, corrected and edited (Miles & Huberman 1994) and analysed in two steps.

Step One: immediate analysis using a constant comparative method (Thomas 2009; 2011a) to make the right decisions about the next steps in the project team coaching cycle. A sociometric analysis to map the relationships between the team members (Thomas 2009; 2011a; McNiff & Whitehead 2005) was drawn to identify relationships in conflict. The conflict map was used as basis for prioritisation of coaching interventions.

Step Two: The outcomes of the decisions drawn from the constant comparative method were condensed in a case dynamics matrix (Miles & Huberman 1994) to describe, understand and explain what has happened in the pilot case. The findings from the case dynamics matrix were analysed in a coaching effects matrix (Miles & Huberman 1994) to evaluate the outcome of the coaching interventions and the quality of the decision drawn.

Sources of Data

Interviews

Yin (2009) marks the interview as the most important source of information in a case study. Therefore, data had been collected in semi-structured interviews. The structured part of the interview was guided by an interview schedule, while the unstructured part of the interview was held like a conversation, with interviewee impelled to determine the direction of the interview (Thomas 2011a).

Direct Observation

A key way to collect data and prepare the structured parts of the interviews is observation. Observation and participation take place in the milieu, community, or social world of the life of a particular group (Charmaz 2006). The observations can range from formal to casual data collection activities. It can involve observations of meetings, sidewalk activities, factory work and classrooms (Yin 2006).

In the pilot study transparency of the team's activities was gained by guiding conversations in moderated workshops and daily stand-up meetings. The results of the workshops were recorded, journalised and submitted to the workshop attendees in form of meeting minutes.

Participant Observation

In participant observation the researcher actually participates in the events being studied (Yin 2006), delineating the context, scenes, and situations of action carefully (Charmaz 2006), while acting in various roles (Yin 2009). According to Thomas (2011a) social activity can be broken down into quantifiable elements, in which the researcher immerses "usually as some kind of participant, in order to understand what is going on there" (Thomas 2011a: 165). Interpersonal, functional and non-functional information and observation kept logged by the researcher as field notes in the researcher's project diary.

Documentation

In the pilot study two types of documents have been used for evidence:

- General information and press releases as published on the public relations web site of LDI. The information gathered from this source was used to qualify the project environment and organisation.
- E-Mail communication and electronic appointments including its agendas – besides participant observation one of the most important sources of evidence.

The case study investigator is an observer, and the documentary evidence reflects communication among the observer and other parties "attempting to achieve some other objectives" (Yin 2009: 105).

Archival Records

Typical archival records are statistical records, service records, organisational records, geographical maps or charts, and survey data. In terms of the pilot study archival records had neither been available nor essential, so archival records could be disclaimed.

Physical Artefacts

Yin (2009) refers to physical artefacts as technological devices, tools or instruments, works of art, or any other physical evidence. In terms of the pilot study none of those may be collectable or observable. In so far physical artefacts are not applicable as source of evidence in the pilot study.

Case and Effect Matrices

A case dynamics (CDM) and a coaching effects matrix (CEM) support the researcher in linking collected data within the case study with explanations and qualify decisions made and courses of action taken.

The CDM "displays a set of forces for change and traces the consequential processes and outcomes" (Miles & Huberman 1994: 148). The CEM shows the relationships of the variables, indicating causal relationships, and analyses the results, effects and impacts of the coaching interventions.

Case Dynamics Matrix

The initial discussions and group conversations with iDev1, iDev2, eDev1, and eDev2 in weeks one and two of the project revealed a set of six major strains and difficulties, which had been rated most likely problem-solving by the coachees. The six major strains and difficulties identified in the coaching sessions were:

- *External Experts are not consulted by internals for creating solutions*
- *External Consultants are used for minor, supporting work only*
- *Internals are regularly not available for consultation and clarification*
- *iDev1 does not fill out the role of the required software architect*
- *The Development Team does not have a separate 'war room' and is spread over diverse locations*
- *Individuals have to spend effort for the Release whenever required, no matter what the project planning stipulates*

These six major strains and difficulties were used as the starting point for creating the CDM, which got continuously enriched by the results of constant comparative analysis, and the strategy how to resolve it (Miles & Huberman 1994). One underlying issue for Strain 2: *External Consultants are used for minor, supporting work* was identified as *External developers are kept from core development, because*

a. *the internals want to provide the solution by themselves (and gain the recognition)*
b. *the internals don't want to lose control over the solution and the knowledge*

Having understood these two motives for interfering behaviour in several iterations, helped to identify a strategy on how to cope and finally resolve the issues. The resolving of the underlying issues was meant to cause a change in behaviour in terms of procedural changes (P), changes in climate (C) and structural (S) changes. When an action did not effect a change, the coaching intervention was indicated as affecting no result. The CDM for strain 2 as example for the general usage of CDM can be found in Table 4-1.

Strains, Difficulties created	**Underlying Issues (As seen by researcher)**	**How coped with**	**How resolved: type of resulting change**
External Consultants are used for minor, supporting work	External developers are kept from core development. Firstly because the internals want to be the ones who provided the solution, and secondly the internals want to ensure that they fully understand the logic of the solution.	Conduct workshops, where the knowledge to create the solutions is transferred from external to internal developers	Increased use of moderated workshops (P) Increased external supervision of implementation (S) Implementation of knowledge transfer workshops (S) Development of conflict free communication (C)

Table 4-1: Case Dynamics Matrix (based on Miles & Huberman 1994)

The information for all strains and difficulties created were displayed in the CDM. The matrix evolves iteratively, and gets rendered more precisely with each iteration. The complete CDM for the 6 major strains and difficulties from the pilot study is displayed in Appendix A.

Coaching Effects Matrix

While constant comparative analysis is an on-going process, which flows into open and axial coding (see section 3.2.4), a deeper and more reflective analysis conducted after several cycles flows into selective coding. Selective coding flows into a coaching effects matrix (CEM), which is based on the effects Matrix as presented by

Miles & Huberman (1994). The CEM helped the researcher in the pilot study to evaluate the quality of decisions made and courses of action taken.

The CEM considers the effects of the coaching in two dimensions:

a. Type of Effect
b. Addressee of Effect

Miles & Huberman (1994) suggest consideration of direct, meta and side effects from the perspective of the coach in terms of the coaching objectives, the organisation, and the administrator on individuals, teams, and organisations (Table 4-2).

		Direct Effects		**Meta Effects**		**Side Effects**	
	Effects on	+	-	+	-	+	-
Coaching Objectives	Individuals Teams Organisation						
Seen by Organisation							
Seen by Administrator							

Table 4-2: CEM Structure (Miles & Huberman 1994)

The saturated CEM revealed several conflicting topics like the ambivalent view of the organisation on empowering individuals through coaching. TUL's supervisor was very sceptical regarding the empowerment of the team, as in his perception people empowerment was counterproductive as the staff's responsibility was abiding directions. The complete CEM for the pilot study can be found in Appendix A.

		Direct Effects		**Meta Effects**		**Side Effects**	
	Effects on	+	-	+	-	+	-
Coaching Objectives	Individuals	Effective, focused communication		Avoiding conflict by avoiding misapprehension		Saving of time through more efficient communication	
		Personal upgrading by achieving knowledge	Overburdened by inefficient communication	Qualification increases motivation and engagement	Excessive demands decrease motivation and engagement	Coverage of personal interest / Skill Matrix	
		Sharing knowledge perceived as upgrade	Sharing of own knowledge perceived as threat	Higher appreciation of associates	Associates feel interchangeable		

Table 4-3: Detail CEM (based on Miles & Huberman 1994)

The use of the CEM is shown exemplified in table 4-3 by displaying the effect of the coaching objectives from the perspective of the coach on the individual.

Causal Networks

According to Thomas (2011a) a single CS is not good to generalise from. But he considers "concerns about how far we can generalise from a case study are neutralised when we realise how tentative any generalisation might be in social research" (Thomas 2011a: 216). The tool proposed by Miles & Huberman (1994) to show possible causal relationships between the variables identified from the CEM is a causal network. At the end of each case / project assignment stands an inductively created causal network, basing on the coaching effects matrix.

Because of the scope of pilot study not being distinct and comprehensive enough to assess the effectivity of causal networks in detail, the pilot study was supposed to help designing an initial document design.

4.2.3 Major Themes

The initial coding resulted in three major themes, which are set out here and explored in greater depth during the course of this chapter. The chapter concludes with suggestions of practical implications for the main study.

Sharing Knowledge

The hierarchical nature of LDI conditioned employees to perceive information as investment in their exclusiveness. Every information shared was perceived as an increase of exchangeability. Holding information exclusively increased indispensability.

> iDev2: "Really - I don't care. But especially the older colleagues would never share any information. Everything you know, while others don't, makes you indispensable."

Even discussing the possibilities and chances was perceived with a great deal of scepticism.

> iDev1: "May they (the externals) can provide a general training providing any information they have."

Researcher:" It takes years to gain that knowledge and competence - I can't believe that all this knowledge and experience can be transferred in a couple of training sessions."

iDev1: "Then they have to provide a catalogue with the most common themes for such a project like ours. I cannot start thinking for them as well."

Researcher:" <iDev1> relax. It's not about them providing any standard information. It's about providing support in fields and areas you need support - they want to help you help yourself."

iDev1: "I've been doing this for 15 years now - I don't need advice."

iDev1's main concern was not being perceived on the same competence level as the externals. For him participating in trainings was equal to being on a junior level. Direct discussions between iDev1 and eDev1 failed for the same reasons.

eDev1: "He (iDev1) drives me crazy. His inability to listen, and even worse, to think, is destructive. It's impossible to work on one concept or thought from begin to end, as he needs to interrupt constantly to underline and make sure that he has an opinion and experience regarding the actual topic as well. Although it's obvious he doesn't know what he's talking about."

The group coaching focussed most of the time on sharing knowledge with the aim to generate an perception for sharing as an advantage. The understanding that there was a need to share knowledge intensified when the initial WBS provided by iDev1 failed LDI s quality guidelines. But while the externals provided any information relevant for the project, iDev1 only provided information relevant for the actual task.

Adherence to Schedule

Valid project planning and estimating was only possible with the external developers included into the the process. To induce knowledge sharing and transfer, regular workshops and meetings were necessary to be conducted by the coach. At the same time TUL conducted estimation workshops for his monthly releases inviting all CMS developers. While the externals rejected participating with reference to their contracts, the internals attended all of TUL's meetings as they expected disadvantages. This led to frustration and disappointment.

eDev1: “<TUL> is my boss and I have to work with him even when the project is over. When he says I have to attend his meeting I do.”

Researcher: “You actively operate against LDI s interest by doing so. You should be aware of this. I wouldn't call this ethical behaviour.”

eDev2: “<TUL> pays my salary.”

Researcher: “Mine too. But he doesn't pay it with his own money.”

eDev1: “Yes, but that's his problem. I do as I am told. This I cannot be blamed for.”

The internal developers did not have the power or courage to withstand TUL's resource allocations. The problem was discussed with TUL to make sure that he officially was informed about the effects of his resource over-allocation and also escalated to TULs superior.

TULs Supervisor: “I think it would be best if you clarified with <TUL> directly. He is ambitious and wants to provide best performance.

Researcher: “At the cost of a strategic project.”

TULs Supervisor: “You will find a way.”

Effective Communication

The mistrust between internals and externals led to meetings and conversations held on a most inefficient level. Many conversations and discussions did not produce any reliable result, became verbally aggressive and required decisions could not be made.

Researcher:” (..) they want to help you help yourself.”

iDev1: “I’ve been doing this for 15 years now - I don’t need advice.”

Researcher:” Not advice, feedback, review.”

eDev1 and eDev2 were frustrated as iDev1 did not include them in the decision making process, although they had been commissioned because of their outstanding expertise.

iDev1: “In the end I am responsible for the solution. Therefore, no decision can be drawn without me. I will only agree when I am convinced of the solution.”

eDev2 (shouting): “But you don’t have a clue about the architecture and tools. You cannot assess any solution proposed. And you don’t have to!”

The atmosphere in those meetings was emotionally so loaded that a rational discussion seemed to be impossible to conduct for the individuals without help. The project manager took ownership and facilitated them to introduce a formal way of how to prepare, how to conduct a meeting, and how to follow-up. Sticking to ground rules fostered self-discipline regarding the meeting culture. The meetings were forced to be more focused, as the contribution of the individuals was more focused. The formal flow of the meeting induced a conflict-free, timely more efficient communication.

Review cycles

Coding and constant comparison is an iterative process (Strauss & Corbin 1990; Charmaz 2006; Bryman & Bell 2011), which is based on continuous follow-up (Berg & Karlsen 2007; Clegg *et al. 2005*; Mulec & Roth 2005; Kilburg & Levinson 2008).

From the data gathering three major themes emerged: “sharing knowledge”, “adherence to schedule”, and “efficient communication”. The occurrence of these themes led to massive delays in the project, and therefore became primary subject for the coaching in the pilot study. Its findings were recorded in a CDM and analysed in a CEM (see Appendix A). Every coaching session produced data, which was iteratively used to refine information gathered and strengthen conclusions drawn. Changes induced by the coaching were observed and tracked by the researcher, and used as input for the forthcoming coaching sessions.

4.2.4 Limitations

Although an initial list of issues to be discovered had been provided in the needs analysis (see 4.1.2), the major themes for coaching directly emerged from the data gathering. The narrow focus in the project planning phase did not allow for including other stakeholders for triangulation. In so far the pilot study bases on the observations, explanations and interpretations of the researcher alone. The only way to evaluate the impact of the coaching interventions was to conduct interviews with

the people involved and the subjective interpretation of the events going on developed in the coaching effects matrix.

The schedule of the pilot study was delayed for several reasons, so that the planning phase could finally be closed with a reliable concept in April 2013. The steering committee and the management involved, perceived having "delayed for only one month" (iDev1) as success and forced the decision to extend the scope for the project. The new scope made many of the achievements delivered dispensable and finally called for a second planning phase with respect to the new requirements. For that reason, the researcher did not prolong his contract and left LDI.

Although changes in group behaviour were noticeable, the time frame was too short for delivering first indicative results regarding the impact of team coaching on software development teams. The pilot study in so far was only valid for the testing and design of tools like CDM, CEM and causal networks.

The pilot study produced a straight forward CDM, but due to its character it resulted in a complex CEM. The CEM was manageable with only four coachees in the pilot study, but the researcher's concern was raised on whether this tool was suitable in a main study for capturing and analysing data derived from a larger group of coachees. Furthermore, the pilot study was inappropriate or testing the causal network to show possible causal relationships between the variables (Miles & Huberman 1994), as it only focussed on one CS.

4.3 Pilot Primary Results, Main Findings & Conclusion

The pilot study was designed to apply the main themes emerging from the literature review to a real project in a real company, and to implement the proposed methods for data collection and analysis to gain knowledge about their practicability. It was initially intended as the first case study in a multiple case study design basing on action research as the primary research method for each case. AR was chosen, because change and unpredictability are incorporated in participatory action research (Easterby-Smith *et al.* 1991), and AR allows adaption of the route of action to the practical needs. It allows for deriving theories from PMC practice, and explore novel and complex phenomena (Argyris & Schon 1991).

Confronting the concepts of the literature with themes derived from the pilot study executed as single case action research ethnographical study, generated a set of primary results of the coaching and main findings regarding the methods to be presented. The chapter concludes with suggestions of practical implications for the main study.

Primary Results

- The initial list of potential goals for coaching prepared by the project manager alone turned out to be valid and helpful. The topics listed helped focussing on themes even in a very early stage of the process. The quality of the initial list certainly depends on the project manager's experience.
- Initial discussions with and observations of the coachees helped narrowing and sharpening the fields of coaching and revealed major strains and difficulties subject to concrete coaching interventions.
- The instant introduction of moderated workshops to improve the quality of team decisions helped the team work more focused and increase productivity.
- The chosen tools of semi-structured one-on-one interviews, unstructured one-on-one interviews, moderated workshops and highly structured daily Jour Fixe meetings can be implemented nearly immediately and also apply to small teams.

Main Findings

- Conducting the research in English language turned out to be impossible as the project language was German. Capturing and analysing data in English language turned out to be impractical, because this required full translation of any information gathered. Therefore, the researcher drew the decision to capture any data in German language and also perform the coding and analysis in German. Only results, findings, or interview parts required for explanation or illustration were translated into the English language.
- The CDM worked very well when it accompanied one coachee and explored the underlying issues of one person's or one team's strains and difficulties.

The pilot study required five CDMs - one for each coachee and one for the team. Five CDMs may produce five underlying issues for the same strains and difficulties, five ways how to cope with them and five different types of resulting changes.

- The pilot study revealed that analysing the CDMs in one joint CEM was possibly misleading. Relying on one team CEM would have suggested a wrong course of action.
  The team CEM indicated an increase in team effectiveness, through knowledge sharing and avoiding conflict by avoiding misapprehensions. On team level dynamics increased as effect related to the coaching sessions. Individual CEMs revealed that the increase in effectiveness was an illusion. The time restricted project situation encouraged team members to take responsibility for tasks they were not designated to.
  It was not the team evolving, but individual people covering the team's lapses.
- To identify relationships between the CEMs a "causal network" was used by treating every coachee as case study. This approach was interrupted by the researcher, as the usage of the tool induced a great level of complexity, turned out to be extremely time consuming without producing valuable results.
- The usage of CEM and CDM also appeared to be rather impractical, because these tools had not been designed for capturing and analysing data for *multiple coachees* in parallel sessions. The headlines appeared to be right, but for analysing team dynamics with more than one team consisting of more than four team members a more dynamic tool for capturing data seemed to be appropriate.

Practical Implications for the Main Study

The pilot study indicated that PMC as leadership style of the project manager could be adapted to the project organisation. PMC contributed to individual performance, and with respect to the project goals also to team performance. Moreover, PMC helped identifying and disclosing fields for coaching by revealing fields for required change in the project organisation. The organisational situation in combination with

the time-frame given did not allow for implementing changes, but the results generated were valid for developing a coaching intervention eligible for inducing required changes within the organisation.

The results generated in the pilot study are based on a single case action research ethnographical study, conducted at an insurance company (LDI) providing the population (sample) for the researcher to participate in.

The results generated during the pilot study are limited in terms of the following factors.

- The results were generated observing a small population (sample). The sample furthermore only represented one single part of the project scope; they were a sub-team only responsible for CMS development. Their internal issues, issues with stakeholders and issues with the management were only explored as isolated occurrences, although the other (sub-) teams were also affected by the circumstances. The situation of the pilot study did not allow for comparisons to other teams or any generalisation.
- The results were generated in an early project phase relying only on the initial planning of the project. The software development work was planned, not conducted. There was no way to assess the team regarding its planning capabilities, so no appraisal could be given about team composition.
- As a result of the time limitations, it was not possible to track possible changes in the team over time. The pilot study furthermore suggested, that the team did not change as a whole. Furthermore, two of the team members appeared to take responsibility for tasks just to avoid conflict and discussion, which helped to increase the performance of the whole team.
- The one-on-one interviews, moderated workshops and daily stand-up meetings were accepted by the team members, but LDI as a hierarchical organisation was not interested in empowered employees. The researcher drew the conclusion that PMC could only be applied successfully to organisations, which had an interest in people growth and development.
- A resilient tool for evaluation was missing in the pilot study, as all team members and management were either involved in the process, or completely

excluded. A peer group comparison was not possible, because of the lack of a peer group.

All final pilot study results are compatible with the outcomes of the literature review. The pilot study project is also comparable with other assignments of the researcher. Although the scopes of projects are as individual as cultures of organisations, the settings of the projects provide the similarity to make the projects comparable. None of the researched projects was setup in a dedicated software company. The projects are usually setup in software departments, which are run like internal service provider. None of the companies calls software development its core business and therefore often lacks proficiency in project management methods.

Based on the synthesis of the literature and the pilot study, the original basic research question is suitable for adoption as the formal research question. The limitations listed above need to be considered for the main study.

CHAPTER 5: Main Study

The report that follows is primarily based on baseline research conducted at the web department of a large cable operator located in the southern part of Germany. The company will be referred to as LCO. LCO operates cable networks in most German federal states and supplies its services to millions of privately and commercially connected households.

The researcher was commissioned to manage monthly software releases and review the underlying release processes that define the release cycles at LCO's web software development department (WEB). The researcher entered the organisation on July 1st 2013, contracted for initially six months. To incorporate the researcher into WEB, a ramp-up time for the researcher in the role of the project manager was agreed and scheduled. From July 2013 to September 2013 the researcher shadowed an internal project manager (pm2) and carried out days of observation, and informal interviews with both staff and management, addressing needs, expectations and fields of development with an influence on the overall quality of the releases. The questionnaire used can be found in Appendix B.

5.1 Study of Context and Needs Analysis

The study was initialised from July 2013 to September 2013, and conducted in the period from early September 2013 to end of June 2014 at the LCO web software development department (WEB).

WEB employs approximately 150 people, delivering online services to end customers. Software development in WEB is organised in three teams, focusing on backend, middleware and frontend services, delivering software in monthly releases. The releases are organised in three distinct phases:

- In phase 1 business analysts collect requirements from all kinds of stakeholders, generate a requirements document and present it for prioritisation to LCO's CIO. Phase 1 is completely in the range of responsibility of the business analysis team.
- Phase 2 covers the implementation of the defined software artefacts, the integration of the new products into the existing product landscape, the

rollout of changes and modifications of the infrastructure, the deployment and testing on a test environment and the preparation and documentation of the software for roll-out on the productive live system. The project manager is in charge for the success of this release phase.

- In the 3rd phase the software product is released to the live system and kept under security surveillance. Bug reports generated in this phase are used as benchmark and CIOs main measure for project success. The number of bugs identified in the stabilisation phase is the de-facto standard for quality evaluations at WEB. The final third phase of the process is under control of the operations team.

5.1.1 Study of Context

The research is based on baseline research conducted in four software releases at WEB, which are named simply after month and year of its launch date -

1. November 2013,
2. February 2014,
3. April 2014, and
4. June 2014

software releases of WEB. Although responsible for the execution of the release cycles, the project manager at WEB is neither involved in scope setting, nor in fixing the timeline for achievement of pre-determined project goals. At WEB the project manager is responsible for reaching project goals, not for setting them.

Structure of Releases

All project phases have distinct pre-defined milestones and checkpoints with fixed and communicated timelines, with an average duration of 15 weeks (Figure 5-1). After prioritisation (QG1') the developers produce detailed software design documents reflecting the technological representation of the functional requirements (QG2). The final gate in the implementation phase is referred to as "Allocation for Acceptance" (German: "Bereitstellung zur Abnahme" - BzA). On this date all

developed software artefacts are transferred from the development environment(s) to the testing environment and get integrated on one system.

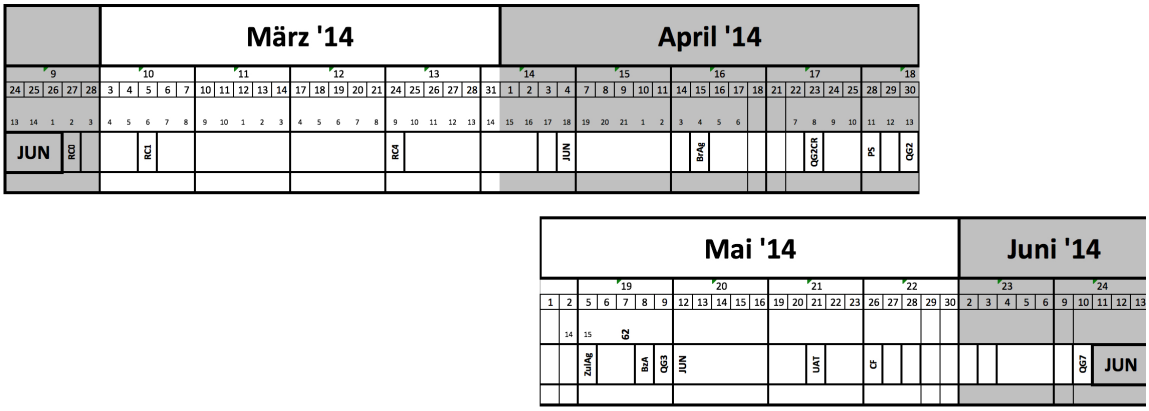

Figure 5-1: Structure of June 2014 release (based on LCO Release Model)

After successful allocation on the test system (QG5) responsibility is handed over to the operations team (GoLive). The operations team deploys and monitors the package produced and requests fixes when severe disturbances are determined in the productive live system. This one-week-sub-phase is referred to as "stabilisation" and marks the end of the complete software development cycle. From QG7 on the new software products are officially standard parts of the system.

The planned weeks between the quality gates are displayed in Figure 5-2.

RC0	RC1	RC4	QG1'	QG1	BrAG
Week 0	Week 1	Week 4	Week 6	Week 6	Week 6

QG2CR	QG2	ZulAG	BZA	QG3	UAT
Week 8	Week 9	Week 9	Week 10	Week 10	Week 12

CF	QG5	GoLIve	QQ7
Week 13	Week 13	Week 14	Week 15

Figure 5-2: Quality Gates and Milestone (based on LCO Release Model)

Scope of Delivery

The project management team determines the capacity available per release, basing on availability of the resources within the teams. The available capacity determines the scope accomplishable per release.

The determined capacities for the releases during the research period are displayed in Table 5-2. The last period displayed in the diagram - July 2014 - was initiated by the researcher, but not finalised within the researcher's contractual obligation.

Sep 13	Oct 13	Nov 13	Dec 13
293	418	384	463

Feb 14	Mar 14	Apr 14	May 14	Jun 14	Jul 14
527	500	424	294	245	278

Figure 5-3: Determined Capacity per Release (developed by Author)

Timeline of the Releases

The WEB year is organised in eleven releases, February through December. The planned production time for each release is fifteen weeks. The average capacity planned per release is 380 person days, to be delivered by three teams, separated by functional considerations.

Due to the overlapping planning every team has a stake in up to three releases at time. For illustrative purposes the design and development phase were coloured in amber, the stabilisation phase was coloured in pink. Figure 5-4 shows an excerpt from the release calendar including the release model.

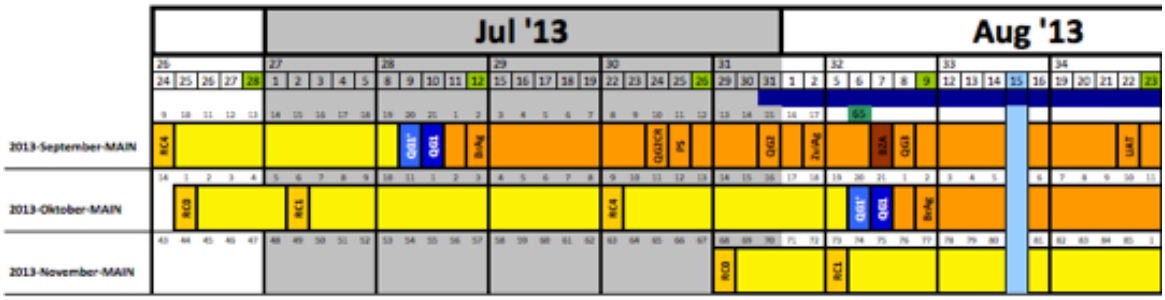

Figure 5-4: Release Model (developed by LCO)

While working on the October 2013 release, developers have to provide bug fixes for the September release, and support BA for their conceptual work for the subsequent November release. Before the Oct'13 analysis phase is closed, the Nov'13 analysis phase opens.

Researcher's Assignment

The researcher's commissioning was extended from November 2013 to February 2014, again to June 2014, and finally to July 2014. The researcher was commissioned to manage the September 2013, February 2014, April 2014, and June 2014 releases and was permitted to evaluate and model processes. The extension of the initial mandate provided the opportunity to analyse the implemented software

development processes regarding influencing factors located in managerial and team behaviour, and general weak points and ambiguities.

5.1.2 Needs Analysis

Following Miles & Huberman (1994), the researcher began by listing a wide range of issues for investigation. The scope was narrowed down by a series of interviews conducted by the researcher with developers and team managers during the incorporation phase in July and August 2013 to set the initial focus of interest.

The issues identified to impact the teams' output in terms of amount and quality of artefacts delivered per release were affected by a range of personal and environmental conditions organised in four broad categories of mediating variables:

1. Physical factors (e.g. unhealthy life-style, long working hours in office)

2. Internal processes (e.g. low self-efficacy, poor time-management)

3. Managerial structures (e.g. weak leadership, ambiguous assignments)

4. Social issues (e.g. conflicts within teams, dysfunctional teams)

In trying to determine where the intervention was most appropriate, the researcher assessed in which of these areas he expected coaching to be effective, considering Charmaz' (2006) "appreciative inquiry", which focuses on building on what is already successful. It was contrasted against the likely obstacles to change. The conclusion of this process is summarised in Table 5-1:

High Impact	High susceptibility to change
Managerial structures	Physical factors
Social issues	Internal processes
Internal processes	Social issues
Physical factors	Managerial structures

Table 5-1: Impact and susceptibility to change (based on Charmaz 2006)

The table indicates that the variables with the highest and lowest organisational impact, have the lowest and highest susceptibility to change. Therefore, it seems appropriate to focus primarily on social issues and internal processes, which are more

open to influence than managerial structures, while having a greater impact than physical factors.

This analysis explores how coaching may help teams to improve the quality of their output.

Team Organisation

WEB is organised in several autonomous teams:

Programme Management

ProgM provides project management services to the releases and plans the availability of external and internal resources. ProgM is led by pmTL.

Frontend Development

The fronted team provides customer interaction and interface development, and provides the client facing part of the software. The front-end team is managed by fdTL.

Middleware Development

The middleware team focuses on developing business logic and provides connections between different software and database systems within the company. Middleware is led by mdTL.

Backend Development & Operations

The backend team provides the infrastructure for running WEBs online applications. Backend is organised functionally separated in two sections: development and operations. The development section adapts existing environments to the requirements from the releases. The operations section is not involved in project work. They aim for keeping all systems up and running. Backend is lead by bdTL. bdTL as manager of the operations team is responsible for providing statistics for the measurement of project success.

fdTL, mdTL and bdTL organise their teams in different, yet contradictory ways. mdTLs middleware team chose the agile “Scrum” method as project management methodology. “Scrum” is based on flexible scoping and therefore requires regular interaction between the team and the requester of the functionality. fdTLs front-end team also adopted an agile software development methodology, but decided for

"Extreme Programming" (XP). XP is based on programming small pieces of software code and revision, by two developers working as one team. XP requires an intensive co-operation with the quality assurance department. bdTLs backend development team implement a traditional sequential waterfall software development approach. This approach requires a very strong involvement of the requester in early phase of requirements engineering and a strong involvement of the quality assurance department in the later testing phase.

All three approaches require different prerequisites and involvement of other departments and resources more or less intensively in different phases. All three team leaders claim their approaches as being most productive and efficient for WEB.

Lack of Leadership

Head of WEB is dWEB. dWEB postulated a set of fifteen rules of how to work together and published it via the intranet. Being asked by the researcher it turned out that there was no awareness for a possible need of dedicated implementation of these rules. In his perception there was no difference in postulating or implementing the rules.

During the initial observation and informal discussions, a discernible gap between dWEB's leadership ambition and the leadership provided by the management. One developer stated:

> "Our standard of programming and quality is very high. Everyone is highly educated and skilled - all external developers hold a doctoral degree in maths, physics or computer sciences. So I have no doubt that our quality of work is above average. What I doubt is that we are working on the right things. To the point: we are excellent in making wrong things right."

mdTL acknowledged a similar sentiment:

> "Our staff is excellent - we have the best people available in the Munich area. But our organisation does not provide time or clearance to use their potential. They are completely driven by a relentless release plan and the no-errors-rule."

fdTL, mdTL and bdTL openly named pmTL ineffective when asked directly. In one-on-one interviews all three did not hesitate to confirm and make their opinion clear.

They all agreed that pmTL was an evidence for dWEBs managerial weakness. This opinion was also postulated towards fdTLs and bdTLs teams causing loss of respect for pmTL and a general mistrust of the quality of data he provided. Asking dWEB why he accepted this improper behaviour revealed that his concept of how to implement the role was ignored by his supervisor, who placed pmTL as an intermediate layer in dWEB's management structure.

"I prefer flat hierarchies. There is no compulsory reason for organising the planning department separately", mdTL amended.

Performance Culture

WEB had the declared goal of releasing as many requirements as possible per release cycle. The time frame for the releases was fixed for the year and was not considered to be flexible. This resulted in a strong performance culture, where success was measured by calculating error points based on defects in the release. CIO interpreted defects as errors, caused by human insufficiency and deeply rooted in personal guilt. Defects and errors seen as starting points for learning, improvement and self-reflection, were not embedded in WEB's performance culture.

Releasing the maximum amount of requirements error free was the declared release goal. Interpreting an error free development as highly performant turned out to be contradictory in reality, because it generated focus on short-term goals, such as finding solutions quickly and "getting things done". Development of core technologies, preparing for strategic goals, and knowledge transfer were sorted out.

It was therefore crucial that the team members were encouraged and assisted to consider more strategic goals, while resisting the temptation of sprinting from one task to another. Coaching was considered an appropriate tool to help teams consider strategic goals and required skills, rather than focusing on immediate targets. While coaching had the potential to support teams to reach the release objectives in the demanded quality. Furthermore, the coaching was required to focus on the broader issue of software developers being ignored as technical experts making recommendations on the scope of the releases from a technical perspective.

Needs from the Team

On September 4th 2013 the researcher conducted a brainstorming session with the individuals whom the researcher considered being in a leading role: fdCore1 for the frontend team, mdCore1 for middleware, and bdCore1 for backend.

The first topic identified in the session was the execution of retrospective meetings. The teams demanded time to evolve from iteration to iteration.
fdCore1 summarised: “As long as we stumble from release to release we keep repeating the same mistakes from release to release.”

The second topic gathered around the question whether or not the project manager can contribute to product quality by keeping track on progress. mdCore1 feared that without progress tracking developers chose tasks and spent time on the tasks they preferred, which lead to the phenomenon that on most complex tasks the least effort was spent.

The third topic directly derived from the previous topic. The tracking of the progress could be displayed on the Kanban board for reporting purposes. Once the planning tool automatically represented the status, no additional reporting was required.

The participants of this discussion decided to conduct a retrospective after the finish of the September 2013 release moderated by the researcher. As objective for the retrospective the improvement and transparency of the Kanban boards was determined. mdCore1stated: “Let’s try to explain what we are doing before we try to change it.” The retrospective meeting was conducted on September 9th 2013, 2pm to 4pm. Participants were developers from the teams, who had a stake in the September 2013 release, and the team leaders of team frontend and team backend - a total number of 18 people. They worked out four questions regarding the transparency of the Kanban board as a reporting tool for the management and status tracking for the team, and agreed on the following set of answers:

1. Is there a need to unify the separate boards the teams maintain? If yes, how?

Unifying all Kanban boards helped the teams gain an overview on the objectives and the realisation status of the release. Challenge would be the size of the unified board, providing rich enough detail for development. Prospectively the usage of a digital board was discussed.

2. Does it help to populate the estimated efforts task-wise on Kanban cards?

The answer for this question was a clear “yes”. fdCore1 volunteered to suggest a card design providing the additional information.

3. How can the individual track be performed, without generating an over-head effort?

The group decided on tracking the work performed in half-day steps using magnets on the Kanban board. Whenever a half-day (4 hrs.) was performed, a magnetic digit was put to the affected card. The team decided to assess the explanatory power after the next release. The result would be basis for deciding on whether the level of detail needed to be increased or kept.

4. Do we want the status of our work being displayed publically at WEB?

The group stated that this was not understood as a control tool for the management, but much more a team driven tool with the purpose to raise the quality of software production within WEB.

fdTL did not accept any of the four answers provided by his or the other teams. He argued that there was no business need for the teams to know the status of the other teams, and the management was not supposed to know too much detail.

> “A high level of detail always raises a high number of stupid questions. The management doesn’t know what we are doing' and explaining them costs time we can spend more productively”

In his opinion the teams were not supposed to track their work, as “this is the project manager’s job.”

Blitzlicht Presentation

WEB leader dWEB was not satisfied with the results his department produced, and therefore explicitly commissioned the researcher to explore, disclose and describe weak points within WEB’s organisation. He asked for what he called a “Flashlight” (Blitzlicht) - meeting to provide first insights six weeks after the researcher’s admission.

The issues for the Blitzlicht-meeting the researcher identified by exploring interactions between the project manager and the teams. Another input for information was asking and interviewing individuals during introduction sessions provided by the researcher. Additionally, a good impression and source for triangulation was provided by the available project documentation. The topics presented to dWEB (and pmTL, fdTL, mdTL, and bdTL) were:

a. Capacity Planning

b. Team Organisation

c. Interdepartmental Cooperation

d. Project Tracking

a. Capacity Planning

Resource planning and task allocation was done by the team managers without involvement of the project manager, and without communicating the plan. Information regarding the planning could only be gained through active socialising. The practical impact was that quality of information depended on how well the project manager got along with the single developer. At several occasions developers also had to work in additional projects, which had never been prioritised or planned. More than once the release overdrew the budget and had to be refinanced. The key cost driver was masked in the large number of requirements assigned to the release.

b. *Team Organisation*

The usage of three different approaches to project management lead to ineffective communication between the teams and an ambiguous information flow between the teams and project manager. Furthermore, team members were not perceived as individuals contributing to the team with certain skills, but only to tasks with their individual efforts. It was strongly recommended to dWEB to decide on a modus operandi valid for all teams.

c. *Interdepartmental Cooperation*

The QA team was truncated from the development teams and only received information actively provided to them. The resulting opacity of the planning caused a high degree of insecurity on QA side. It was also bad common practice not to actively inform QA about changes of the software installed on the test system. This

asynchronous mode led to tense situations and conflicts between the teams more than once.

d. Project Tracking

As no overall mapping between tasks and responsible developers existed, tasks could only be correlated to individual developers by asking. And without or improper information the degree of completion could not be determined. Two developers guessed that thirty percent of the development time was spent on "special missions." The absence of a measurement method actively hindered the implementation of a valid project-controlling tool.

The presentation of this issues led to a very emotional discussion. dWEB and pmTL called for more transparency of the planning and task tracking. fdTL heavily argued against transparency for the sake of the productivity of his team. And according to fdTL and bdTL control "results in the loss of creativity and courage to think out of the box." fdTL substantiated his argument with the fear, that project tracking lead to reduction of budgets and therefore to the degradation of WEB by granting a reduced overall budget.

Relationship of Leadership Team

The researcher used the "Flashlight" (Blitzlicht) - meeting to systematically explore the relationships between the members of the management team. Focus was the behaviour during a discussion and the process of making consensus. The created sociogram reflects how often one interrupts the speech of a colleague, how polite and respectful the people treat each other, and how distinct the ability to listen actively is. These criteria are quite complex for a graphical sociogram, but can be applied to a group of only five.

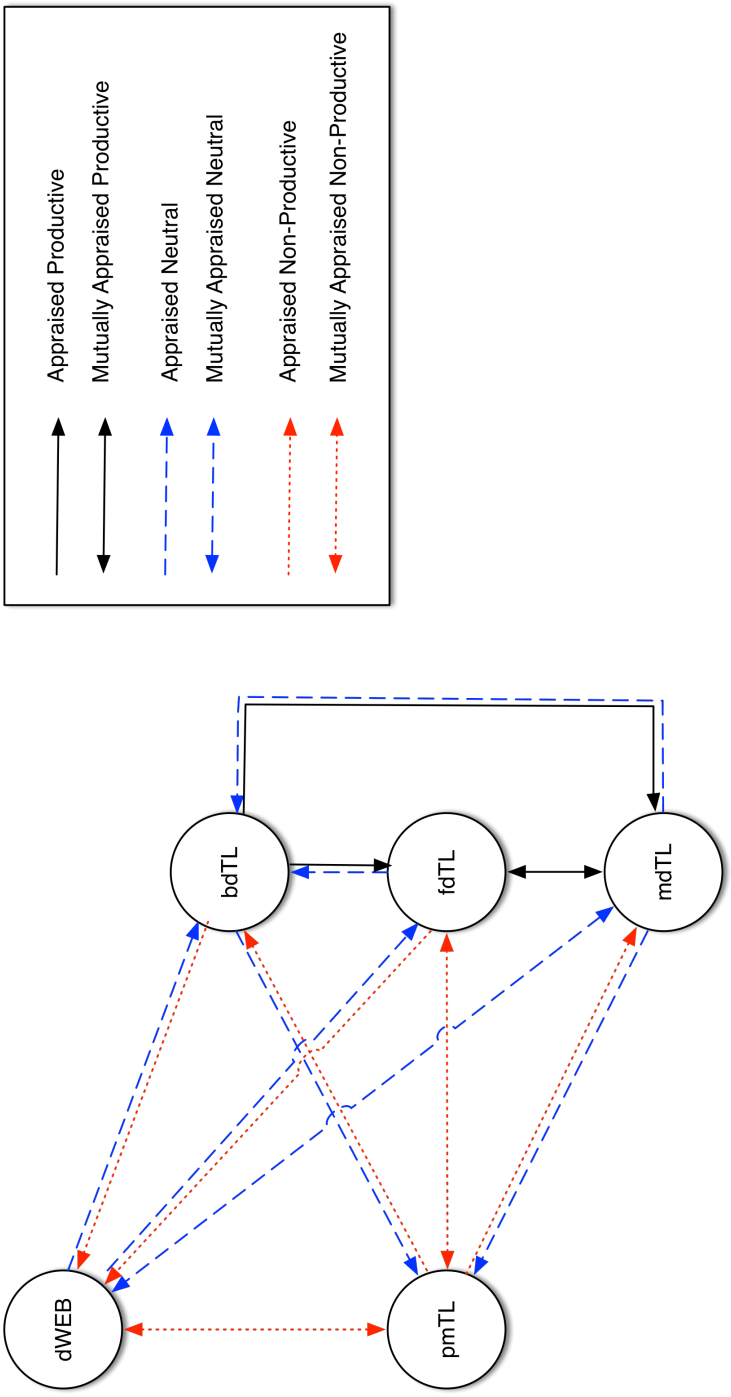

Figure 5-5: Sociogram WEB Leadership Team (developed by Author)

The most conspicuous in this diagram is that all parties appraised dWEB as non-productive, while dWEB appraised his whole leadership team as neutral. The three development team leaders bdTL, fdTL and mdTL built a phalanx, with fdTL in the centre playing the role of the "primus inter pares." fdTL's appearance was very dominant, while mdTL was much more reluctant, but still a strong supporter. bdTL was the weakest part in this construct, and appealingly only accepted by fdTL,

because someone was needed in this role. bdTL clearly indicated several times that he did not feel comfortable with WRs/KDHs confrontational course, but did not gain the power to resist and establish his own ideas.

5.1.3 Plan of Intervention

In order to specify methodology and objectives before commencing the stages of the research (Greif 2011), the researcher gained an understanding of the challenges within WEB by direct observation, hand over sessions with actual and former project managers, interview sessions with developers and team leads and the retrospective session conducted after the September release.

The researcher discussed possible approaches to coaching with dWEB and pmTL. While pmTL supported the approach in its entirety, dWEB could not imagine the relevance and possible benefits. Finally, both, the researcher and pmTL convinced dWEB to approve the researcher's approach of coaching from the project manager's role. Precondition for dWEB was the concealment of the intervention. Without secrecy about the intervention he would not approve this course of action, as he feared emotional discussions hindering the teams to generate results. Therefore, neither the team members nor the team leaders were supposed to be informed about the coaching intervention by the coach. Whitmore (2002) determines that non-information about the coaching intervention does not have an influencing effect on the success of the coaching.

The rule of concealment stated by dWEB led to the significant practical consequence that the first and following cycles of the coaching were designed to be more experimental and therefore the researcher left the format less structured than originally intended.

Focus of the Coaching

The forgoing needs analysis provided two foci for the coaching: a narrow focus on the organisation and communication in and between the teams or a wider focus on the issues of leadership involving teams and management.

While not mutually exclusive, these foci were quite distinct, and had significant implications for the aims and the delivery of the coaching. But the researcher also

suspected that the coaching itself would help enhancing the focus to the wider view, and question the implemented process of releasing the software. The researcher was convinced that after having shown improvements in the first coaching cycle, dWEB would approve disclosing the coaching intervention and widening the focus for forthcoming cycles of coaching.

Coachees

The researcher planned to provide individual and group coaching to address personal development issues, which were more individualistic, and group specific areas of growth to relieve communication and improve the information flow between the teams. The people chosen for the individual coaching are marked in grey in the organigram shown in Figure 5-6. Each team was represented with two coachees, one internal and one external (marked with an * in figure 5-6).

Against the initial intent of having each team represented by a software architect and a senior developer, fdCore2 was chosen for individual coaching. Although fdDev1 was officially the architect for the Frontend Team it was clear very soon, that fdCore2 was the factual software architect, with most experience and deepest technological know how. The organigram in figure 5-4 reflects the people possibly involved in or possibly affected by the coaching the intervention.

Figure 5-6: Organigram (developed by Author)

Coaching Model

The study explores the role, that coaching may play in enhancing team performance. The proposed coaching model is extremely brief and aims to help team members to focus on a clear goal in agreement with the goals of the other team members create a detailed action plan and increase the team member's self-management capabilities to improve the reliability of software deliveries. The coaching format can be found in Appendix C.

In the first action research cycle the coaching took place in two one-on-one coaching sessions per week. To allow for sufficient privacy and avoid distraction the researcher booked a conference room Tuesday and Thursday morning for three hours. Although each session was planned for twenty minutes, the blocked time corridor was forty-five minutes to allow for a more in-depth discussion and have the time comment on the notes taken during the session.

The format of the coaching was kept under review and adjusted according to needs during later cycles.

Evaluation

While much of the original strategy remained, the researcher had to make changes to the data collection methods to account for the aforementioned rule of concealment. Sound recording without unveiling the coaching intervention would have raised distrust, leading to limited quality of the information given. Providing coaching to the team managers would have required regular contact and conversation regarding the project scope. The only sources for evaluation given for the first action research cycle were dWEB and pmTL, and the other project managers, who were available for review sessions and appraisals.

The format of the evaluation, like the coaching itself, was kept under review and adjusted according to need during later cycles.

5.1.4 Summary

As a result of this investigation, the researcher concluded that the major issue facing WEB and its staff, which could be addressed during the first cycle of action research,

was insufficient self-organisation and goal commitment and lack in taking responsibility.

The study of context let the researcher to believe that the coaching should aim initially to help the team members to clarify this issue and instigate positive change. In subsequent cycles, the coaching was used to help implement strategies the teams and their managers developed throughout the first cycle of coaching.

5.2 Cycle 1: November 2013 Release

This chapter begins with the finding that the major challenges to be addressed first were insufficient self-organisations and goal commitment and taking responsibility. After a brief description of the coaching intervention and data collection, the chapter explores the main learning from this coaching cycle.

The main finding from the needs analysis was that WEB suffered from its own culture of high performance, paired with inconsistent development approaches founded in a weak leadership-style. But because of dWEB's disposal of keeping the coaching intervention hidden, there was a need to adapt the classical process of coaching.

The major challenge for the researcher was establishing a coaching relationship and the main question was how to implement behaviour change without actively calling for it. Starting with a phase of diagnosis appeared illusive, as the researcher had to renounce a kick-off session to explain the method of coaching and discuss the goals of the intervention with the coachees.

The main focus of this initial coaching cycle was targeted at self-organisation, goal setting and taking responsibility.

5.2.1 Coaching Intervention

The concept of inducing behaviour changes via multipliers influenced the selection of people to be coached. Individuals from different teams developed the November 2013 release topics, but only six developers took the responsibility and served as single points of contact. The structure of the coaching sessions differed from developer to developer, given the highly personalised nature of the subject. But the

researcher tried to maintain a broadly consistent overall structure that was in keeping the goal orientation.

To respect the requirement of hiding the coaching intervention raised the need to adapt the coaching phases. The researcher involved the lead developers in the coaching and decided to perform the coaching following two approaches. The first more traditional approach was based on diagnosing the need from the team and the requirements dWEB had provided, deriving goals for the coaching, planning the intervention, and then executing it and establishing a continuous follow-up cycle. The second approach was more agile in nature, basing on options rather than goals, and considered the coaching as conducting experiments, where the outcome delivers the input for the next cycle.

5.2.2 Cultural Hacking

"Cultural Hacking" (Hofstede *et al* 2010) is based on the idea that teams expect advantages for themselves when adopting unexpected behaviour. The theory of objective self-awareness states that the coachee compares the actual behaviour with his or her standards or the real with the ideal self-concept (Greif 2010). The process of comparing the self with standards allows people to change their behaviour and to experience pride and dissatisfaction with the self. In this way a behaviour change can be induced without a formal coaching process. It is mainly based on Whitmore's (2002) determination that the coaching process can be loose and informal and does not necessarily require to be perceived as coaching intervention.

Diagnosis

In the particular situation of WEB diagnosis was conducted by the researcher without coachees' participation. The researcher decided on starting with observing the problem and collecting any information available by focussing on asking people involved. This process revealed weak communication, poor self-management and lack of responsibility as main areas for development and change. Basing on this the researcher developed a set of hypothesis regarding the origin, and the main effects of the problems.

Developing Options

In this phase the researcher developed options alone due to the coachees' unavailability, knowing that continuous adjustments might be required. Asking the questions:

- How can the problem be disclosed?
- What changes the problem?
- What can be done to disturb the problem?
- How can the problem be magnified, exaggerated?

lead to goal defining and setting. Each option was evaluated regarding risk and depending on riskiness and expected effectiveness.

Conducting the Experiment

The formal coaching cycle requires implementation and continuous follow-up. The researcher implemented the chosen option and reappraised its effectiveness continuously. The experiment was conducted by experimenting the option and exploring its effects (see Figure 5-7). Once the desired results were achieved the whole process jumped back to Diagnosis.

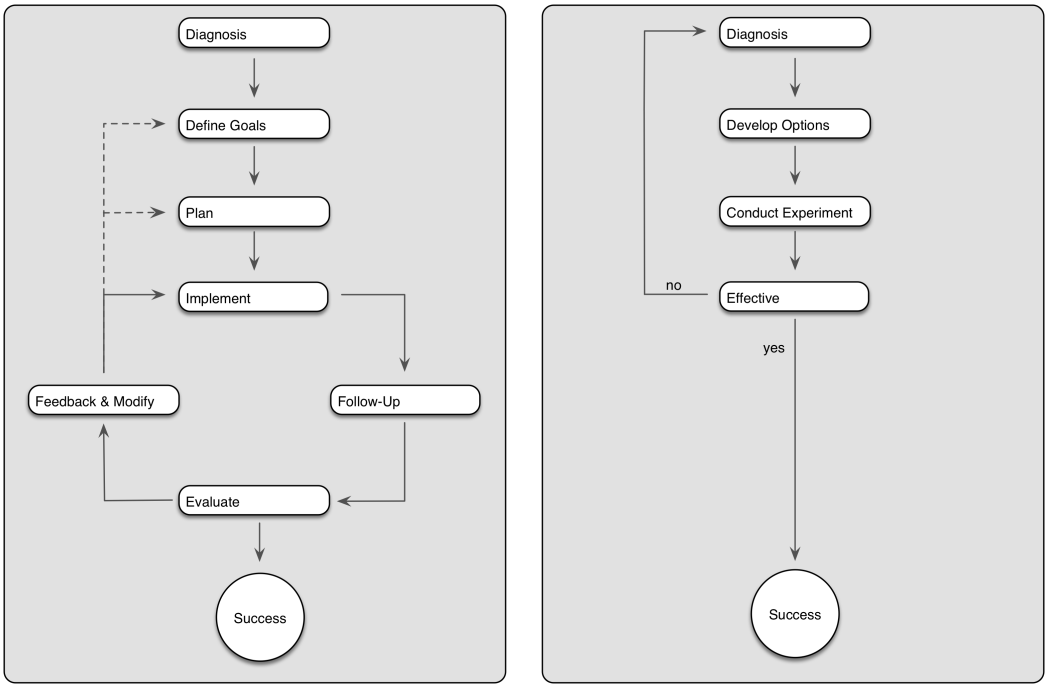

Figure 5-7: Formal Coaching Process vs. Cultural Hacking (developed by Author)

5.2.3 Data collection and analysis

To address the issues of poor self-organisation, weak communication and avoidance of taking responsibility the researcher applied formalised behaviours when working with the teams, and explored the effects and possibly induced changes and results. Throughout this period of coaching the researcher maintained a project diary to record observation and feedback and a session log to record key points from the coaching.

The software developers perceived project management as a rarely positive discipline due to its bureaucratic character. With the embedded coaching the perception started changing and the feedback provided became more positive: “The project manager keeps asking questions without forcing solutions. (..) In so far project management indirectly helps solving the issues faster”, was a feedback provided by one of the frontend developers in an e-mail to his team manager fdTL. fdDev5 feared that the status meetings became too time consuming.

The analysis of the data from the group coaching involved three stages (Charmaz 2006). An initial coding procedure was designed to highlight key issues and a priority based on the number of mentions. From the number of mentions of key words and issues, the researcher derived initial themes, which were clustered through a process of focused coding into groups of core ideas (Miles & Huberman 1994). Based on the frequency, constancy and the salience of those issues, a list was drawn up of major theoretical issues. These were further investigated in the semi-structured interviews conducted while discussing status reports. The main lessons of the group coaching conducted during the weekly team meeting are itemised as follows:

1. The developers were hoping for a project management not only compiling reports, but also removing impediments slowing the process of development down.

2. The developers were very much hoping for support and advice from their team leads.

3. The developers saw a benefit in being listened to by an objective project manager.

4. Developers will feel more committed when being involved in the planning process.

5. The strength of the developer's resentment and hostility was crystallised.

From this the researcher realised that he needed to make greater effort in generally clarifying the role of the project managers within WEB (item 1, 3 and 5) and the position of the project manager in the role of coach in relation to WEB (item 2 and 4) to ensure that the coaching process did not become undermined. The researcher also needed to work to ensure that the coaching was clearly geared towards practical gains (item 1).

Following the completion of the coaching cycle the researcher concentrated on conducting semi-structured interviews with three (lead-) developers fdCore1, mdCore1 and bdCore1. They are all eager to make swift progress and increase the quality of work produced. fdCore1 is a very polite person and speaks of WEB as a "start-up company which needs to be raised to the next level", which the much more cynical bdCore1 amends by saying that the start-up company "should have been raised to the next level ten years ago". bdCore1 sees a good skilled and motivated team, and asks for help to discipline and qualify the management, as "the fish starts stinking from the head".

The initial coding of these interviews was more interpretive, as now some initial indication of relevant concepts became distinct. The early memos at this stage were also more comprehensive. Consequently, the focused coding resulted in some major themes, mostly relating to the (indirect) coaching relationship. At this stage the entire body of research data was reviewed in detail to examine how it could inform and possibly alter theoretical categories. With each interview session this process went through another cycle of examination.

The following themes stood out as the ones with the most explanatory power to explicate the issues playing themselves out in the coaching, and were most reliably supported by the data.

5.2.4 Major Themes

These four issues are briefly set out here and explored in greater depth during the course of this chapter. The chapter concludes with suggestions of practical implications for the next coaching cycle.

Establish an atmosphere for coaching

The major challenge in establishing the team members' buy-in to the coaching was the aforementioned problem that the coaching intervention was supposed to be kept in secret. For that reason, the researcher had to provide coaching technique, while providing the choice for the team members whether to accept it or not.

Building Trust

The main threats to a trusting coaching relationship were external at WEB, given by the circumstances of the leadership of dWEB and the team leaders. Taking more responsibility and being proactively involved in the planning process made some team members, especially the lead developers, fear that "working with the project managers on organisational matters" may be used by the team leaders to release them from their commitments. Furthermore, there was a certain doubt that it may result in greater pressure for the developers to compensate for failure of the organisation. Whether hidden or not the coaching needed to be focused building a trusting relationship.

Set clear goals

A greater goal commitment seemed to be increased through two separate stages of goal clarification. Identifying the general goal - what major products would be enhanced, adapted changed or newly released through the release - and the operationalization into more concrete, person related goals, basing on particular skills.

Focus on the practical

The discussion about setting clear goals and taking responsibility for the planning spilled over at times in scepticism and disbelief. The reason lay in two major issues the researcher was convinced not to solve in the first cycle. The new software products were planned from an isolated perspective, while the tight planning did not allow any time for revising the software code. For code refactoring the team over estimated tasks, which increased cost with no better results. The researcher analysed the theoretical implications of these core issues in several advanced memos. At the end of this discussion practical implications for the second coaching cycle in the February 2014 Release will be suggested.

Establish atmosphere for Coaching

The initial challenge for the researcher lay in establishing team members' buy-in to the coaching, without revealing them being coached.

The researcher explained the method of cultural hacking and its possible benefits to the key developers and clarified that this method had the potential to implement change. With these individuals as multipliers there was a chance to spread the required change over the organisation. And changing the teams' behaviour bore the chance to subversively change the behaviour of the WEB's leadership team.

Some team members resisted the idea of the cultural hacking as solution for three diverse reasons:

- Firstly, most team members felt that the team leaders should resolve the problem.
- Secondly, the issue of taking personal responsibility was viewed by many of the team members as irrelevant by comparison to the responsibility taken by the leadership of WEB.
- Thirdly, some of the team members could hardly see how changing the group's behaviour would lead to practical results.

Dependence

There was no meaningful strategy in place to achieve the aim to raise productivity or at least retain the quality of the existing software product. Teams were not being encouraged or supported in reviewing the overall software architecture or code quality. And as being not involved in the planning processes the teams were not willing to take over responsibility.

This issue was addressed in the coaching by helping the developers to recognise that it was their reputation of creating a high quality software product. The interviews with the team members revealed that this process was successful with most of the them, although to varying degrees.

Other needs

One of the developers stated: “we need more hands-on training”, and another amended in the same session, that she was “unhappy about the lack of training regarding the overall software landscape.” From her perspective it was “absolutely necessary to be trained on the ERP and BI systems”, which required interface changes constantly. “For us developers it is like flying blind - radar off. We don’t know anything about the systems we have to provide interfaces for (..) The probability to provide data formats that do not match is very high.”

The issue of not providing sufficient training and knowledge transfer is linked with the objective of the coaching for taking responsibility. The researcher decided to separate the issue of personal responsibility from other needs identified during the sessions, as he feared of being perceived by the teams as covering up on those other deficiencies.

Practical benefits

To view cultural hacking as a solution, the coachee needed to be convinced that it had the capacity to contribute towards a solution. With this toolset at hand and the researcher volunteering for carrying information to the leadership team or the CIO, this stage of the coaching was designed to help the coachees clarifying what they were hoping to achieve.

While known goals were rather unspecific and unclear, the team members were unable to formulate action plans regarding goal achievement. Many of the developers started out with only vague notions of which changes could have impact on the organisation.

> fdCore2: “I cannot think of any behaviour I show to have an impact on <dWEB> or the other team leads.”
>
> Researcher: “What bothers you most in daily business?”
>
> fdDev1: “They are never on time in meetings. They are never prepared. They always come late, and always leave early. During the meeting they answer phone calls or E-Mails.”
>
> fdCore2: “ Wouldn’t it be easy to formulate ground rules for meetings? Anyone must stick to them. Anyone from inside and outside the team.”
>
> fdDev1: “Rules like what?”
>
> fdCore2: “No meeting without agenda. No meeting without decision. If the time is up, a new meeting will be scheduled. No meeting longer than 30 minutes. You can think of anything. Whatever helps.”

This conversation led to a set of ground rules the teams agreed and worked on during this and the following release cycles. These rules were populated over the intranet and used more and more consequently, showing a major impact over time.

Build Trust

The coaching process starts with establishing a trustful coaching relationship (Sadowsky 2007; Wasylyshyn 2003). Although the coaching at WEB was not officially called or introduced as a coaching intervention, building trust as prerequisite for effective coaching had to be established. The researcher’s independence as an external consultant was crucial to trust and to an effective coaching.

This first coaching cycle revealed that even if the relationship between project manager/coach and team member/coachee was based on respect and empathy, it could be keenly limited by stresses from the external context.

mdCore1: “It is great that you are involved in the process and there might be a chance that you make the leadership team to reconsider the release calendar, but I remain of the view that they have the responsibility to firstly notice the pressure induced by the planning, and secondly enforce a planning that allows for set-up times.”

mdCore2: “It is first of all dWEB’s responsibility to become accepted by CIO. As long as dWEB acts like a bunny in front of a snake, we will constantly run at 150%, which leads to a high rate of sick leaves and a fluctuation of employees.”

There were broadly two kinds of threats to trust:

- WEB leadership may use the project manager / coach to evade their responsibilities towards CIO
- resulting in greater pressure on the development teams.

Evade Responsibility

Mainly all developers were concerned that involving the project manager into planning and team building processes was used by the leadership team to diminish their responsibility to provide the managerial cover and involvement they pledged. Some of the developers at first suspected dWEB and the team leaders to use the project manager to get the team members feel obligated for tasks the team leaders should be doing. They also insinuated that in this way the management team was trying to release themselves from their responsibility.

The backend development teams’ lead bdTL suggested that there was truth in this concern.

Researcher (Researcher): “[CIO] is not always fair and seems to become even more harsh when he suspects weakness.”

bdTL: “That’s what he calls leadership. Always having the last word. As soon as you appear to be weak he grills you no matter whether you are wrong or right. As long as you seem to be self-confident, he accepts you - not on his level, but at least as a human being.”

Researcher: “Ok - that means neither dWEB or pmTL have any chance.”

bdTL: “The same with fdTL. His strategy is avoidance. So does dWEB. That’s why he delegates tasks. He is desperately avoiding any situation in which he has to explain [CIO]. That’s why he is so happy about you.”

Researcher: “ What do you mean?”

bdTL: “You take responsibility for the releases and you have the background to professionally evaluate the releases. If [CIO] respects you, you may turn the page, else you are the external project manager whom they easily can get rid of.”

Researcher: “That’s an inspiring perspective.”

Increase Pressure

There was concern that the deep involvement of the project manager and the willingness to take responsibility would result in greater pressure on the development teams. It was feared that the coaching intervention could rather become a threat than empowerment, because the new way of taking responsibility might end up in massive personal responsibility. Overemphasizing the issue of personal responsibility could repulse if the coachees felt being put under additional pressure, which put the coaching in this early phase of the process under additional risk.

If the developers perceived the project manager as a coach commissioned by dWEB with the objective to shift managerial responsibility onto the teams, they would have refused to cooperate in any activity beyond the development work. They pointed out that commissioning a coach would never be accepted and could never generate any valuable results. Thus, the term “coach” for the researcher was established in an early phase of the process.

The independence of the project manager’s coaching was highly significant for the research.

mdCore2: “Project management skills can be purchased and applied to any organisation according to [dWEB]’s ideas. But team building would never work when performed under [dWEB]’s ascendancy.”

If the researcher had been commissioned for coaching instead of project management the teams would have been less willing to accept the researcher’s claim of independence.

Set clear Goals

The main aim of this initial coaching cycle was to clarify what the development teams needed to increase productivity and reduce stress level during the release iterations. Two key findings emerged from the the first series of one-on-one and single interviews.

- Greater clarity of goals would lead to greater commitment
- Greater involvement into the planning process would lead to taking responsibility

Clarity of Goals

Several discussions and interviews indicated a relationship between clarity of and commitment to release goals.

mdDev3: “Planning is estimating. And who could be better in estimating than the people involved? (..) When I estimate the tasks to work out a release plan I am responsible for delivery. It’s a question of honour to deliver a 'ready' product. When I am not involved I do not care much. They don’t care for my opinion; I don’t care for theirs.”

According to the goal setting theory (Locke & Latham 1990; Latham 2007) achieving goal clarity is as motivational as setting a goal. During the coaching process two stages of goal setting revealed in the release planning process. The first stage of goal setting is more general and relates to the context of the whole release, while the second stage is more specific relating to the workload and collaboration of the team members and teams.

The first stage considers the requirements engineering process, which is driven by BA and only involves a technical architect for the software environment and the team leaders for initial estimation.

The second stage focuses on the development cycle. Each requirement was dedicated to a single developer who had to take responsibility for punctual delivery of the product. fdTL, bdTL and mdTL alone did the dedication.

fdDev3: “It would be an enrichment to be made responsible at least for assigning the requirements and tasks to teams and people.”

The researcher theorised that involving both stages of goal setting for releases could gain maximum benefit for the teams regarding their involvement and therefore motivation, but there was no hierarchical dependency between the stages of goal setting. But changing the process of the first stage would require actions laying outside the releases and affecting business processes not embedded into the development part of the release cycle. The trigger for this could only be dWEB. The trigger for the changing the process in the second stage of goal setting lay in the team.

Taking responsibility

During discussions regarding responsibility a more general topic of generally making one person responsible for each task, job, duty or function emerged. They agreed on a principle of directly responsible individuals (DRI) to ban groups of people from feeling collectively responsible. The individual had to focus on tasks very closely, while delegation was a probate method of getting things done. This DRI principle was set up nearly immediately by publishing all team functions on a virtual Kanban board including the name of each DRI for every single release deliverable.

fdCore2: “When we prepare transparency they also cannot hide anymore.”

Focus on the Practical

To deal with scepticism and negativity the researcher decided to redirect attention towards positive effects and influence the team could have on the management. The researcher asked the teams to formulate ground rules for behaviour in the release cycle, which the teams would be willing to claim for adherence. The most obvious field for fruitful change identified was the meeting culture at LCO WEB.

The ground rules agreed on and applied at once were:

- Meetings are time boxed - if required schedule a new appointment, but don’t overrun
- No meeting without agenda - we can only be effective in meetings when we know the topic and can prepare for it
- Buffer times between meetings - give at least five minutes for the attendees to change location so that they have a chance to be on time

- Note the main findings - sent out a brief protocol after every meeting, even when nothing was achieved and no decision was made

Meetings following these ground rules were much more effective and sustainable. And the number of individuals acting according to these rules grew very fast. The development teams adopted these rules for themselves completely within three weeks.

At this point in time, at the end of the November 2013 release, the teams had experienced their influence and controls on and over the management team and the level of scepticism was reduced to a tolerable minimum. One developer remained negative - in the researcher's view this was because he wanted to avoid working and did not gain any motivation from the results of his work.

This coaching cycle indicated that cultural and behaviour change was possible even when starting from a low power position. Scepticism in a group can be overcome if it is ignored in favour of action towards the desired culture and organisational behaviour. The implication of personal responsibility and involvement daunted some of the team members until they experienced the possible changes induced by their own behaviours.

5.2.5 Plan for second coaching cycle

The first coaching cycle addressed the general issues of establishing an atmosphere for coaching and trust building without being revealed as coaching intervention. Taking responsibility regarding planning the release cycle and providing a system of DRIs was the key focus for the second coaching cycle. Another key area for the researcher was to make the coaching official and gaining the mandate to act as a coach and present himself as a project manager for the releases with the additional assignment to challenge processes and team structures.

To establish a planning responsibility within the teams, it was essential to include the team leaders into the coaching intervention. Although they had been slightly affected by the cultural hacking interventions, it was obvious that they needed to encourage more leadership. For different reasons fdTL, mdTL and bdTL were not willing to empower and motivate their teams with providing more responsibility and trust into the teams. In the researcher's perception they had very different reasons to remain in

their behaviours - and mainly remain in their comfortable position of being not questioned by dWEB.

Building on growth of responsibility achieved to varying degrees and initial steps taken in goal setting in the first coaching cycle, the second cycle sought to include the team leaders into the group of coachees and work out a detailed action plan on how to increase the quality of the releases, while decreasing the stress level of the individual team members.

Most of the team members were ready to enter a stage of working on a detailed action plan, as the teams had clear ideas of what was required to achieve its goals. The next chapter will report on the second coaching cycle.

5.3 Cycle 2: February 2014 Release

A major issue in the first coaching cycle turned out to be the restriction to officially establish a coaching relationship. Implementing and using coaching tools and techniques had to be shrouded, and the researcher in the role of the project manager suspected, that he would be perceived as an over ambitioned external project manager, without responsibility for the results achieved. Confronted with this fear dWEB declared that he was not willing to be held responsible for undertaking a coaching intervention, as this would be interpreted as a confession of weakness and non-assertiveness. He also declared his conviction that the researcher's coaching increased the quality of the development and furthermore intubated the transparency he required to control his team managers fdTL, bdTL, and mdTL. The required flexibility to react properly is an inherent facet of any action research model (Stringer 1999; Whyte 1991) and coaching (Peltier 2010; Whitman 2002). On the team level the coaching itself progressed smoothly.

One finding from the first cycle was, that the teams were willing and able to take responsibility and gain transparency, as long as the organisation led by dWEB generally, and fdTL, bdTL and mdTL specially would not use this as vindication not to live-up to expectations. So the difficulties at WEB persisted into the second cycle and the turbulence at WEB intensified and diversified, requiring further adjustments to the coaching intervention.

The second coaching cycle was the first to consider needs from the team determined from observation and goals derived from interviews and group sessions. Therefore, the chapter begins by describing the recent developments and the evolution of the coaching program. It continues with a brief description of the aims of the coaching in the February 2014 coaching cycle and delineates the data collection and analysis. The emphasis of the chapter lies, like in the previous chapter, in addressing the major themes and conclusions drawn from it.

5.3.1 Challenging Circumstances

dWEB announced in early December 2013 that BA would be unhinged and cut off pmTL's control, while baTL, a long time member of the BA team, was held responsible for taking leadership of BA by January 2014. With BA as an autonomous business unit baTL cleared the way for the developers to take more responsibility and be included into the process of planning.

One problem overshadowed the organisational changes and chances in December 2013. fdTL forced fdDev6 to refactor software code, while programming new code for the December 2013 release. Neither fdTL nor the developer made this process transparent, resulting in a crash of a required database interface, which needed to be unchanged for a requirement of the February 2014 release. Fixing the interface and delivering a software artefact would take several days, causing a delay in the February 2014 release.

This incident made dWEB take the researcher's suggestion more seriously to "shift the planning competency away from fdTL to the team itself", and include them into the BA process as soon as possible. People started reporting that the atmosphere at WEB had improved, and both motivation and performance increased. dWEB reported that he perceived the coaching as successful, and the developers considered the action planning a "positive experience", "useful process" and the tangible results "quite exciting". Although the situation remained fraught, the challenging conditions at WEB obviously commenced a shortcut to implement more responsibility for the teams - a surprising outcome, which suggests several lessons for the theory and practice of coaching.

One significant development was dWEB's realisation that no software solution embedded in a multiple systems environment should be designed, planned or estimated by a single person. dWEB explained in the January Town Hall Meeting:

> "We need to gain more transparency. And the only way I see to do so, is to switch the planning responsibility towards the teams, guided and attended by the business analysts and project managers. I want the BAs to present new requirements in the team meetings and ask for volunteers. I also want the PMs to attend this process methodologically. I think this is the right choice in the long run, and it will help avoid situations like in December immediately. I don't want fdTL or any other leadership person been seen as the problem. If we all pull in the same direction, WEB will be perceived a strong unit delivering high-quality software products."

dWEB's explanation did not help the developers to transform the anger into a more positive shape. They furthermore seemed to lose respect for dWEB. fdCore2 said the following:

> "dWEB has demonstrated that he has no leadership capabilities. He avoids decisions, is only keen on perception, and is totally free of empathy. He has no idea how his employees perceive him and for that reason fdTL can play tricks on him without worrying about possible consequences."

> fdCore1: "Who in the company has confidence in <dWEB's> leadership skills? Are they blind?"

The increase of mistrust between the developers and dWEB had a warming effect on the relation between the researcher and the developers. It bore direct benefits for the coaching process and WEB, which will be explored in a later chapter.

5.3.2 Team Coaching

While the second coaching cycle began with the teams continuing from the first cycle, it became clear that the teams would struggle to implement a unified display to present the overall progress and responsibilities to the organisation.

fdCore1 stated:

> "Drawing the decision to gain transparency was quite easy and mutual. But taking the step to really do it requires some courage."

Implementing the group action plan turned out to be more challenging than expected from the teams.

> fdCore1: "Making the plan has been easier than I expected, but it did become apparent that what we need to achieve as a team cannot be easily done."
>
> fdCore2: "It's the same for me. I am mostly responsible for the team board, but arranging an overall display involves a fair amount of organisation and time. Participating on all team's board meetings is too time consuming and running around and asking for the status is too impractical."

This discussion led to the suggestion to involve the project manager into the team planning processes and making him responsible for providing an overall status board.

> fdCore2: "I provide the team board for the frontend team, and the colleagues from the other teams provide their boards..."
>
> fdCore1: " ... and the project manager consolidates the information - a win-win situation for all, as the project manager by doing so also produces an actual project status report."

However, fdTL raised the concern that the joint information board would not accommodate the needs of the team, as it misleadingly compared the progress of different teams, disguising reality:

> fdTL: "I have been listening to this whole discussion and you are saying that the project manager should compile a joint board to present the status to the management and control and evaluate the teams."
>
> Researcher: "It's neither about control nor evaluation. It's only about gaining transparency."
>
> fdTL: "This is of no importance for me. (..) Do as you like. But as soon as I notice a decrease in speed or performance I will stop this nonsense."

It was agreed that the project manager designed a Kanban board basing on the reporting format for CIO. This board was placed in a prominent place, where an official update meeting was conducted, with every team member involved

participating. Every requirement in the release was assigned to a DRI, and any discussion regarding requirements from the release would be held in front of the board. And as any outcome was documented directly on the board, the board was accepted very soon and used as a meeting place. Pictures of the board can be found in Appendix E.

The group coaching was not ideal for some developers. Those who were reluctant to participate in implementing the plan ultimately accepted that they should do their share. The team members took ownership of the process and contributed to shaping it.

The individual plans for the teams that were started in the early retrospective session, evolved during the first coaching cycle towards plans covering the needs of all teams and fed into the group plan to which all individuals agreed. Working as a group posed several challenges but also presented certain opportunities, which will be explored during the course of this chapter.

5.3.3 Implementing Needs from the Team

With the second coaching cycle an overall status meeting was scheduled. This session was used to review and refine the joint action plan that incorporated collective needs and goals. A great deal of effort and time was expended on establishing an effective group ethos and format to facilitate this outcome. The researcher's experience with facilitating workshops and moderating conflict communication contributed significantly to his ability to steer the coaching towards constructive outcomes.

The board became a haptic surrogate for theorising questions of software development. A cooperative atmosphere arose, allowing for needs formulated not necessarily required to be technical. The teams worked out feasible objectives and negotiated activities to be incorporated in the group action plan, initially created during the "needs of the team" session. Once the action plan had been amended, they worked out how to incorporate the assistance of fdTL, bdTL, and mdTL into the action plan. Finally, they formulated what motivated them for carrying out the action plan and established commitment to accomplish it.

5.3.4 Data collection and analysis

The analysis of the data involved three stages using grounded theory methods. The initial coding procedure was designed to highlight key issues and their prominence. From the frequency and prominence of key words mentioned a set of initial themes was derived and clustered through a process of focused coding into groups of core ideas. From this a list of major theoretical issues to be investigated in semi-structured interviews was derived.

As a result of the aforementioned improvement in relations and the possibility implement transparency into communication, it was possible to at least involve fdTL in some of the discussions and obtain his assistance. The transparency prevented him from making changes without adjustment with the other teams.

In the second coaching cycle semi-structured interviews were conducted with fdCore1, fdCore2, and fdDev2 from the frontend team, bdCore1 from the backend team, and mdTM and mdCore1 from the middleware team. They all were key developers and DRIs for particular requirements, and involved in many other artefacts to be delivered. Furthermore, they had participated in the initial retrospective meeting and new about cultural hacking.

The initial coding of interviews and notes from the group sessions was more interpretative. The memos at the first stage and the early memos of the second stage were written down in the researcher's research diary. As the memos became more comprehensive the researcher started working with a notes taking software. Consequently, the focused coding resulted in some major themes, primarily relating to action planning and group coaching. At this stage, using the software tool, all data reviewed as one to identify how it could inform and if necessary alter the theoretical categories.

To gain validity the themes were regularly presented to the core team to attain feedback, approval and refusal from the team members. Although not presented as coaching goals, the acceptance of the topics was clearly stated by the team and indicated its accuracy.

5.3.5 Major Themes

The focused coding resulted in four major themes, which are set out here and explored in greater depth during the course of this chapter. The chapter concludes with suggestions of practical implications for the next coaching cycle.

Focus on the progress

Focusing on practical steps and reflecting on the progress of the whole group appears to enhance buy-in by creating greater willingness and cooperation. It finally leads to sharing success, as action planning reduces criticism and complaining, partly because it engenders acceptance of self-responsibility.

The second coaching cycle revealed that practical progress improved team effectiveness. As the team members themselves had done the task assignments, they were committed to fulfilling the tasks. And the decision to take the responsibility of assigning the tasks was derived from coaching sessions - a decision formulated and established by the team.

The team members became more enthusiastic and found the results of the coaching more appealing once the focus was shifted from the need of change towards practical steps.

> fdDev2 stated: “I keep using the cultural hack regarding the meeting schedules and really enjoy the result. I decline meeting requests from managers, and interrupt any discussion by referring to the time required to properly prepare for a meeting. And it really increases the quality of my work time. Furthermore, I have time to perform my tasks instead of hopping from one result-free meeting to another”.
>
> mdCore2: “I totally agree. The time spend in meetings which you wouldn’t have joined if you had had the agenda before, dramatically reduces, although there are still people who do not accept me to decline their invitations. But still - the number of meetings which I cannot contribute to was reduced drastically, giving me more time to spend with my priorities”.
>
> fdCore1: “But it’s not only our more consequent behaviour. It colludes with our joint board and the approach to report our status in a completely open space. We

can symbolise our progress and no one can deny that we are progressing - even we cannot do so by ourselves. When you started talking about cultural hacking and action planning I feared quite a bit that you were insane, but once we started implementing this stuff and experienced real improvements I could relate to that and understood what you meant."

mdCore1 expressed concern that the action plan was insufficiently practical:

> "I don't have a clear plan for myself. I still don't know were this route might lead us. I am also not convinced that the quality of our work had changed. I only see improvement in how to display it".

mdCore1 feared that they were only working on the form instead of the function. He felt that as soon as the management got accustomed to this way of reporting the release cycles the positive perception would be lost, and it all turned out to be "old wine in new skins". He feared that this form of taking action would not incorporate his needs, and thus would only be a nine-day wonder.

An inspiring result of the action planning process was, that developers focused on trying to improve team and organisational processes they interacted with, rather than complaining or trying to get WEB and dWEB to do things for them.

> fdCore2: "In a normal release cycle the teams are trying to work out whatever team relevant requirements had been formulated, without taking into account the big picture."
>
> Researcher: "What do you mean by 'Big Picture'?"
>
> fdCore2: "The single teams decided to divert their attention towards what they needed to do to make the best out of the situation. Your project management style focuses on creating a general map and on dependencies between the requirements, not on isolated teams. Other project managers do not question the sense-making of the task assignments and only plan for getting things done. You induced a change which the teams seem to have adopted. (..) I am a little scared about the March release. It will be managed by <pm2>, who is the opposite of you and has no respect for any team dynamics."

This suggests that if a coachee is clear about the goal, and therefore the whole team has reached goal clarity, the team will focus on that goal and is less likely to engage in marginal activities that distract from its attainment.

Dealing with challenges

Challenging circumstances can be enriching for the coaching, as coaching deals with helping the coachee to navigate through challenges by progressing from one level of problem to another.

The team was gloomy when they realised that despite progressing on the original issues, fdTL had forced fdDev6 to refactor software code without harmonising it with the software architect, and without conducting appropriate estimating and planning steps in collaboration with the project management. Without further reconcilement fdTL shifted the affected requirement from the December 2013 release into the February 2014 release by cancelling agreed Christmas vacations. Between 23rd of December 2013 and 3rd of January 2014 six developers were involved in fixing the homemade issues.

The workload for the February 2014 release increased significantly, and the level of frustration was very high. The coach decided to support the team in problem solving rather than escalation, while the team published issue by officially reporting it on the joint Kanban wall and adding it to the public risk register. Against fdTL's directive the team took responsibility for the issue under the condition that the project manager reported it as an identified risk to CIO. In review this process strengthened the coaching process.

The team's strategy to take responsibility for all problems while reporting them officially as additional risks, lead the researcher to two conclusions:

- Firstly, the team may not always be able to solve a problem, but to break it down into more detailed sub-problems. This process may have the same effect as moving from a problem to a solution.
- Secondly, the coach needs to understand the evolutionary process of problems to align the coaching with the level of detail the problem covers.

Brotman *et al.* (1998) and Levenson (2009) and others (Mulec & Roth 2005; Spence & Grant 2007) seem to focus in coaching on single solutions. But coaching also covers segmenting problems by detailing them and then progressing through a series of more detailed problems. The level of detail evolves from abstract and unspecific to highly related with practical questions. The coach and the coachee need to stay focused to progress towards the goal of the coaching, instead of stumbling from one problem to the other. Breaking problems down seems to be an as important part of progressing as finding the solution. While disconnected teams spent time with suppressing errors, joint teams spent time on reporting and documenting issues, and thus lay foundation for a learning organisation.

Strengthen trust

Trust is crucial to the success of a coaching process. A way to establish trust within the process is to establish an open communication, which enables cooperation and leads to improvement in coaching.

The reporting of the issues enabled dWEB to engage with the teams' action planning process, and created the conditions for the team members to be willing to cooperate with each other. dWEB expressed this with the following comment:

> "I was very pleased to see the teams cooperate - all three of them - working as one unit, and helping each other. And I was also pleased to gain transparency on how the planning is going for the teams. <fdTL>, <bdTL> and <mdTL> also have to learn a lot. This mainly shows that they need to stick to my rules of collaboration. On team level we obviously have no issue."

The team members noticed the change in dWEB's interest and commitment, but kept retention regarding his understanding of implementing change.

> fdCore2: "He still believes that writing 15 rules of cooperation and sending them via E-Mail is identical with inducing a change in collaboration. I fear he believes that the on-going changes are based on his document."
>
> Researcher: "In a certain way they are, aren't they? He postulated his will for changing the organisation, which is the backbone for all our activities. So he perceives himself as the root cause for the changes."

fdCore2: “It would be funny if it wasn’t so tragic.”

The atmosphere at WEB improved and motivated the individuals to carry on providing individual and joint action planning.

dWEB: “I want the team leaders to support the planning activities of the teams. I don’t want them to do the planning without involving the teams. I want them working on a more strategical level, and less detailed.”

Researcher: “I can offer conducting a workshop in which you make your objectives transparent and as a group you can decide on how to progress.”

dWEB: “My objectives are clear. If they need a workshop you can make it so, but I don’t need it. I can’t spend my time explaining the same things all over again.”

Disappointed after this conversation the researcher decided to abdicate from conducting such a workshop and keep on concentrating on team activities and action planning. Although bdTL, mdTL and notably fdTL were directly involved in the team processes, the researcher suspected that their behaviours could be deducted directly from dWEB’s hindrance of forcing a spirit of openness and constructive support. dWEB’s commitment with the teams improved relations, but did not solve the conflicts in the leadership team. It cleared the air for practical progress. But it was obvious that the conflict with the team leaders was an impediment that had to be put out of the way soon. The effects of the practical progress reinforced the conclusions reached in the previous chapter about the importance of trust as a major building block for the success of coaching.

Fostering teamwork

Group work requires managing a range of challenges, such as conflicting interest and diverse needs. Group coaching needs to support seeking and accepting the necessary assistance, while reducing social loitering and fostering positive interdependence that creates accountability.

It is the coach’s responsibility to encourage the coachee to seek help from others, and identify the most suitable person to provide assistance. The team provides help to formulate individual actions, when a joint action plan is developed and implemented by the team. Questioning behaviours and guiding individuals to seek help from a

group or the whole team is a core function of team coaching. It has to be in the coach's focus to evaluate continuously whether the goals are in the hands of an individual or the team. Working out the action plan in the team was revealed by the group sessions as very beneficial for the team. mdDev5 said:

> "I got struck with providing resilient estimates. So working with a group was very helpful for me. Someone either had done something similar before and could provide an estimate based on his experience, or the group had the ability to illuminate the problem for many perspectives so that an estimation could be provided collectively."

Working on the Kanban board as a joint team reinforced responsibility. The joint planning and action taking affected the contribution of each individual. One core theme of team coaching is balancing reinforcement and pressure by managing diverse skills and diverse demands by focusing on core objectives and facilitating compromise. The presence of others and the joint commitment motivated and fostered adaptive behaviours.

> fdCore2: "The best thing is that some of the people experience a social pressure, which is unspoken but clearly understood and driven by their own claim - the claim not to attract negative attention within the group. I really like that."

Working in project teams can be highly beneficial, as responsibilities are shared for a shared outcome and detailed tasks (Banham 2009). Teamwork is considered effective when it is embedded in an appropriate organisational structure, fosters individual contribution and provides supporting team processes (Mickan & Rodger 2000; Marks, Mathieu & Zaccaro 2001; Wheeler, Hihn & Wilkinson 2002; Dionne *et al. 2002*).

On the level of team processes the functions of communication, decision-making and cooperation were addressed in the coaching sessions and implemented in using the Kanban board. The challenge of self-knowledge was addressed, but needed time to develop.

5.3.6 Plan for third coaching cycle

The next coaching cycle was designed to include the early design process driven by the business analysts into the planning activities of the development teams, and

implementing the concept of accountable managers and responsible team members. It was planned to keep the individual coaching sessions unchanged and refine the individual action plans of the coachees.

The coach's main focus lay on observing and noticing changing conditions and challenging circumstances and help the team and its members to adapt their action plan to meet any new reality. The results of this approach are reported and analysed in the next chapter.

5.4 Cycle 3: April 2014 Release

This chapter begins with a brief report of the on-going challenging circumstances leading to changing conditions affecting the whole WEB organisation. These changing conditions required organisational activities to which the coaching had to react to most flexible. But besides the organisational changes, there were also changes induced by the success of the coaching intervention itself. Involving the developers into joint planning together with business analysts required a new coaching format.

The people to be coached individually and the frequency of team coaching remained unchanged. The individual coaching aimed at refining the individual actions plans of the coachees and prepare them for peer coaching with the BAs. From this major change in set-up the major themes were derived. It provides an overview of the evolution of the coaching process and the reaction to changing processes at WEB.

The issues and findings described below are the product of various cycles of theoretical memoing and clustering in order to identify the core issues emerging from this cycle of the coaching.

5.4.1 Changing Conditions

A central challenge in this coaching study was the ever-raised question of how to handle a coaching intervention that has to be kept in secret and conducted in the face of instability.

Cycle 3 was affected by three main developments:

- Contracts with TC, a telecommunication company, were negotiated regarding a planned acquisition, and first projects were prioritised giving a preview on the imminent merger.
- dWEB decided to implement a matrix structure, strengthening the position of the project manager, while reducing the team leaders' power and openly mistrusting pmTL being the right person in the right position.
- CIO announced his quitting and his leaving by the end of April 2014.
- All these developments contributed to continued uncertainty.

Merger & Acquisition

The media started speculating about a possible acquisition of LCO through TC in November 2013, which was confirmed in an internal note in February 2014 explaining that contractual negotiations between LCO and TC had started.

Although the developers of the WEB department acknowledged that this merger bore a chance, there was a lot of confusion regarding the future existence of WEB. The developers hoped that an adjustment with TC filled a gap at LCO. The emerging risk was that developers felt responsible and less committed during the merger.

> bdCore1 gave a felicitous résumé: "We started to change things, because we wanted to become independent of project magic and miracles. (..) The truth is: if you stop changing now, there will be no reason for <TC> to maintain WEB, when the organisational merger will be carried out. Waiting for this means pausing for at least two years, and then there will be nothing left to merge."

Strong Matrix

WEB followed a classical functional organisation, where each department works independently from other departments (PMI 2013). After the introduction of the Kanban board dWEB postulated WEB a "strong matrix" organisation, where the project manager had full authority over resources and funding of the project. A strong WEB matrix organisation basing on the model by PMI (PMI 2013: 24) is represented in Figure 5-8.

Figure 5-8: Strong Matrix Organisation (developed by Author)

It became apparent in this cycle that dWEB was trying to avoid any conflict with fdTL, mdTL, and bdTL. The researcher had to avoid getting exploited, as dWEB suggested using the clandestine coaching against the team managers. Shifting the focus towards the issues dWEB had in mind derailed the coaching away from the finalisation of the action plans.

Management Structure

CIO expected the project manager to report the release status directly to him, skipping five levels of hierarchy (Figure 5-9). dWEB's choice to disempower the team managers added another source for tension and distress.

The main objectives of the team coaching are practical actions. Significant changes of the environment in which the coaching takes place can diminish the value of the coaching.

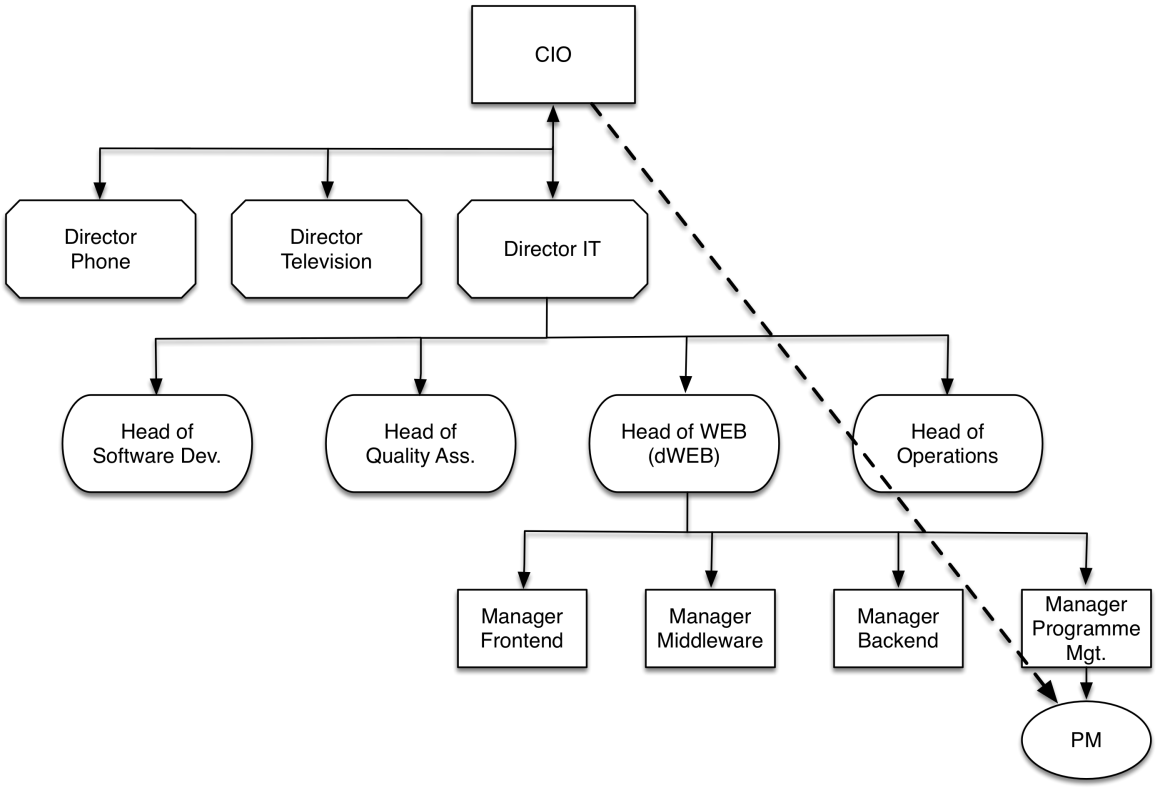

Figure 5-9: Reporting Line (developed by Author)

Surprisingly for the researcher the team members claimed in practice that this uncertainty would not affect their action planning. bdMM claimed:

> "The planning won't be affected by this. (..) I don't know what's going to happen. Maybe it all gets better, maybe not, who cares? I am just doing my stuff as good as possible, so that no one could suspect in the end that I was not exerted."

5.4.2 Developing Project Managers

dWEB suggested to address the coaching towards enabling the project managers to use and develop the tools implemented, because pm2 had refused to manage the May 2014 release. He had major concerns regarding the strategy of team empowerment, as according to him the project manager would lose control. To compensate for pm2's refusal dWEB had to make pmE1 project manager, who had no relevant experience as project manager.

dWEB's plan to let the developers work in dyads or triplets to map out a plan for the project manager's tasks and train the project manager failed. They did neither engage into the process nor accept the idea.

> mdCore1: "We don't need to spend time to train <pmE1>. He has been involved in so many projects, that he'll manage that task perfectly. And if he is in trouble, he may ask and anybody will help him."
>
> mdCore2: "I definitely agree. He is a clever and nice guy. There is no need to worry that something might go wrong."
>
> fdCore2: "And no one on this planet will be able to spend the required time to qualify the others."
>
> Researcher: "What do you mean?"
>
> fdCore2: "In project management you need (..) a set of methods to choose from, and the ability to engage with people. <pm1> (..) has no empathy, and <pm2> has nothing."
>
> mdCore1: "<pm2> is unable to deal with people. Why should anyone spend his time and teach him? By the way - he would never attend such a 'lesson'."

Enabling the team members to coach others required them to undergo an intensive training. The researcher noted in a memo the assumption that successful coachees are not necessarily turned into good coaches by coaching. To make a coachee a coach, a

significant investment of time and effort is required. Besides the missing coaching qualifications, the process of creating a detailed action plan for future project managers turned out to be an impractical approach for the developers, as it was too time consuming.

The researcher concluded in a memo, following Sperry (2008), that coaching was rather a role function than a profession, which required besides intensive training, a personal aptitude depending more on personality than knowledge. In the same memo the researcher raised the question, if a person with that personal aptitude had the ability to omit coaching at all, when empowerment of team members was neither desired nor welcome.

5.4.3 Setting Up a Coaching Strategy

In cycle one the researcher decided to align his project leadership-style with principles of coaching and dispose and develop a more transformational leadership-style, which enabled the coachees to develop during the approach of project management. It is mainly based on Whitmore's (2002) determination that the coaching process can be loose and informal and does not necessarily require to be perceived as coaching intervention. While change management foremost focuses on changing processes, coaching aims at aligning people's behaviour and acceptance with new processes. The researcher embedded the coaching into his work as a project manager, focusing on a transformational style of management while managing the project. By doing so the researcher identified two major contradictory approaches.

Top-Down Approach

Although coaching is adjusted with the coachees needs, the goal of the coaching intervention is set by the client. The directions for the coaching are given by the person who commissions the coaching intervention, but the input provided by the coachees also affects the client's ways of thinking.

Bottom-Up Approach

The researcher adopted the concept of "Cultural Hacking" (Hofstede *et al* 2010) to his approach, to implement personal and team goals based on the idea that a group

would adopt behaviour changes that lead to advantages. Due to the unofficial, yet clandestine character of this kind of intervention, data produced regarding the effects of cultural hacking was limited. Still the researcher would cautiously point to indications that the cultural hacking had benefited the coaching in the form of transformational project leadership.

In a memo reflecting on the coaching approaches the researcher summarised:

> "The cultural hacking approach, following the simple steps of diagnose, derive options, conduct the experiment and look whether the option was successful or not, is a much more agile way of inducing change. The steps are smaller and the client interaction is much higher frequented. The planning and implementation phase in traditional coaching require much more time, and the tracking of success in a continuous follow-up cycle is much more complex. After the hack is done, you just look on the achievement. If you achieved what you gained to achieve, you go back to diagnosis with a new topic, if not, you go back with the old one."

This section will briefly explore how both approaches could be aligned and balanced, so that dWEBs requirements regarding work structures could be implemented.

Re-focusing the Coaching

The second coaching cycle revealed a major dependency between organisation and communication in and between the teams and the leadership-style and decision-making of the management team. It disclosed that both organisational facts were closely entangled and could not be separated or viewed distinct, as hypothesized in the initial needs analysis.

At the outset of the study it was planned to conduct a formally commissioned coaching intervention, which had to be concealed from the coachees. The researcher noted in a memo, in which he reflected on dWEB's motives:

> "<dWEB> wants to increase productivity, quality, and cohesion - but he does not have the competency to commit his team managers to form team structures the way he expects the teams to be organised. He is a technician - he confuses definition with action. He believes that a properly description in the intranet is equivalent to implementation."

A great deal of the coaching focusing on the teams was initially directed at dealing with obstacles to effective coaching and establishing coaching relationships. In cycle three the coaching ultimately made valuable progress in clarifying the teams' responsibilities, and the team managers' duties.

Consolidating the Approaches

The first cycle of coaching revealed that greater involvement into the planning process led to taking responsibility, while greater clarity of goals led to greater goal commitment. In the second cycle greater support within the teams arose through regular exchange and joint planning using a Kanban board. Individuals actively interacting with other individuals or with groups of people had the power to induce behaviour change to individuals and trigger behavioural patterns of groups using simple techniques.

The researcher theorised that the more traditional top-down approach was suitable for providing directions and overall goals for the coaching, while the more agile bottom-up approach ("cultural hacking") fostered changes in behaviour, organisation and structure.

The researcher consolidated both approaches to visualise the focal point, where the themes and topics turned into options that could be experimented more easily (Figure 5-10).

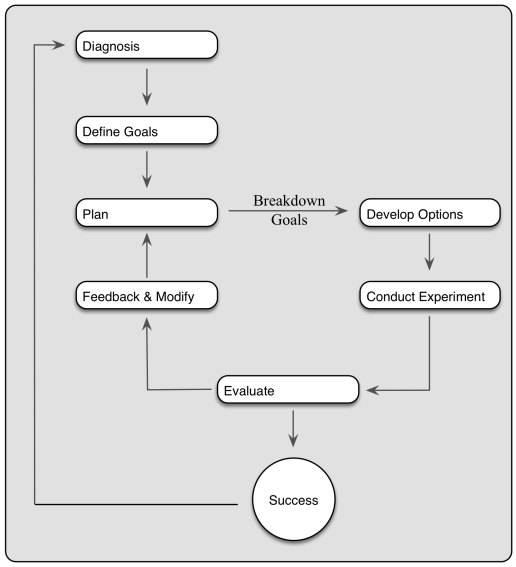

Figure 5-10: Agile Coaching (developed by Author)

The coaching process as implemented in cycle 3 begins with a diagnosis phase, in which goals are identified, refined and detailed, and goal specificity enhanced. Once this was reached, an action plan was derived from the goals listing the specific steps to achieve developmental goals. The process of transforming action items into options is an iterative cycle in itself, aiming at breaking the task down into smaller chunks. This approach followed Richard (2003)'s suggestion to define the underlying problem to be solved to reach the defined goal. Options are identified by asking questions regarding problem solving, changing or disturbing, magnifying or exaggerating the problem.

The chosen option is then implemented and evaluated by the researcher. If the effectiveness of the change is evaluated positively, the option is considered a success, and the process progresses to the next iteration. If effectiveness of the change is neutral or negative modifications are defined. The refined option goes back into the planning process for reconsideration. This altered and adjusted approach of the coaching was supposed to produce measurable results faster, be more motivating for the team members, and make the wider focus of the coaching more manageable.

5.4.4 Data collection and analysis

The Kanban board to visualise the overall project state, tasks and responsibilities had become the centre of the project. pmE1 suggested a new card design allowing automatic extraction of the card data from the requirements sheet, and possible digital evaluation and representation of the board status. With this changes the Kanban board turned into a well-established reporting tool, which in addition to the regular meetings became and remained a valuable source of information and data.

Beginning with the April 2015 release baTL started joining the board meetings. It was agreed that once a week a certain amount of time was spent for him to present the latest requirements to be analysed. Whenever technical support was required developers had the chance to get involved in the planning process, while the BA team gained an DRI for all critical topics very early in the process, and the coach confided in fact, that baTLs attendance in the team meeting appealed to WRs, CSs, and KDHs honour to attend the meeting as well.

The method for data analysis was not changed, only the source of data was expanded. pmE1 and baTL attended one-on-one coaching sessions, and the separate team and status meetings were conducted jointly at the Kanban board. The changed modus with four team managers attending slightly altered the form of discussion. The self-confidence of the group was challenged and increased.

Data gathered in notes and photographs of the Kanban wall, voice recordings and memos written by the researcher remained subject to the coding procedure, highlighting the key issues and their prominence. Themes were derived and clustered through a process of focused coding into groups of core ideas. From this a list of major theoretical issues was derived to be investigated in both semi-structured group and one-on-one interviews and the whole Kanban group.

5.4.5 Major Themes

Focused coding resulted in three major themes, which are set out here and explored in greater depth during the course of this chapter. The chapter concludes with suggestions of practical implications for the next release cycle (May 2014) led by pmE1 and the last cycle of coaching (June 2014) conducted by Researcher.

Action Planning

Planning actions is challenging, when the coaching is conducted in an challenging environment. The most appropriate course of action is probably not the most appealing. The coaching in cycle three aimed at distinguishing possibly ideal results, which depended on impractical actions, and the recognition of the possibly best available option.

Developing Options

The consolidated approach to coaching in the third coaching cycle was designed to help the individuals and teams to achieve the best possible result under challenging circumstances. From the planned actions a set of available options was derived and analysed to determine the most realistic course of action. Choosing small and actionable options prevents long periods of development without closer inspection of

the practical effects. A high number of small steps provides the possibility to re-align the course of action. A workable action plan consists of a set of the best options.

Staying Motivated

As aforementioned the goal setting theory (Locke & Latham 1990; Latham 2007) illustrates that achieving goal clarity is as motivational as setting a goal.

Deriving actionable options from the goals helps to clarify the steps to be taken that sum up towards the goal. The coach has to help the individuals overcome the possible frustration caused by the amount of open items in the beginning and the perceived slow progressing during the process.

Action Planning

Action planning in this cycle focused primarily on involving into the initial analysis processes, taking responsibility as DRI for requirements, develop actionable and suitable options and report on the planning and progressing on a daily basis. The action planning was challenged due to the challenging environment of WEB. The volatility of the organisation was perceived a thread for the whole process of planning.

> bdCore1: “I am not willing to work out any more plans which are more than rough drafts. Either they change their mind and question the need for implementing a new feature, or they ignore any change process and simply demand a change, or they provide own schedule, which ignore the estimated effort and available resources. Planning is time consuming - and mainly of no earthly use.”
>
> mdCore1: “But still the planning is important - it helps structuring the work. Scheduling does not make any sense here.”

The coaching was required to re-frame the perception of the planning. Planning was not for the sake of the organisation, but for structuring and identifying the tasks. It was meant to increase the quality and reduce the risk of their work.

> fdCore2: “Developing an action plan and deriving a schedule is helpful. Even if you can’t stick to it, you have a benchmark to measure delays and aberrations. In

a volatile environment it is a very good result to know how much the environment affected your initial planning."

mdCore1: "And it's easier to adapt an existing plan rather than developing a new one (..) When you compare your plans with what has been worked out in reality, you'll surely find that your plan might represent the best way of doing things, but the result represents the most practical way to go forward."

mdCore2: "Planning action sets out a timeframe from the very beginning. So planning action is equivalent with facing reality. You know what to achieve by when, you know when you failed, and you know when to update the planning. The number of surprises is lower."

It was important to distinguish between possibly ideal results, basing on an impractical route of action, and a second best result, achievable in a less challenging way. With respect for this question the coach amended the coaching with questioning the developers for the reasons why they were satisfied with their action plans.

The action planning forced the developers to think ahead, while presenting the planning on the Kanban board forced self-management and discipline. The team discussion helped the individuals to identify and plan necessary actions, and monitor whether they were "on track". The researcher suggested that the act of planning in a group and documenting the planning stimulated the idea of the learning organisation and fostered knowledge sharing.

Developing Options

The consolidated approach to coaching aimed at helping individuals and teams to achieve the best possible results. The challenging context made it inevitable to carefully consider the coachee's options (Whitmore 2003), to verify that the chosen ones were most viable. Deriving options from actions leads to a workable action plan, which can be handled, changed and monitored easily, and which provides through its cyclical, iterative design continuous alignment with goals and its derived actions. To evaluate which option is best, a sense of realism is required, which the coach needs to preserve. The coach's main duty in this phase of coaching is to enable the coachees to recognise practical limitations and consider them for further planning.

In a memo the researcher noted:

> "Change needs time, and some change needs a certain time. The coachees need to be focused to prevent them from working on questions, which cannot be answered at the time. (..) And I also have to retain from choosing too ambitious options. Patience seems to be the main virtue."

The literature states that the ultimate goal of coaching lies in change (Waldroop & Butler 1996; Clegg *et al*. 2005; McGill 2010) to make the individual and through that the individual's organisation or team succeed (Berg & Karlsen 2007). Understanding the constraints is fundamental for developing the best options available, and accelerates the process of conducting, evaluating and modifying the experiment.

Staying Motivated

Staying motivated is a challenge for everyone involved in the change process or the coaching from day one. Over time it became apparent that motivation was a topic to be addressed in the coaching. Although PMC is highly motivational for teams (Grant 2012), the teams faced a lack of motivation at the beginning of cycle three.

In this particular situation the researcher could not conceive any extrinsic factors to increase the level of motivation. The team members in their feedbacks affirmed this appraisal. Besides identifying the benefits of achieving the goals-to-options transformation, the coaching project manager needs to ensure the commitment (Whitmore 2003) of the individuals to a unified set of team goals that provide direction (Mickan & Rodger 2000).

> fdCore2: "(..) He (<fdTL>) is loosing the connection to model his own department. He will be in a very dependent situation, and once this situation is reached, I will lean back and enjoy it (..) We will be the pioneers to work with agile methods at LCO. The last time they tried to implement it, they totally failed and no one is brave enough to try it again. And we will come up with a model up and running."
>
> fdCore1: "Would be great, but a very optimistic view. It definitely helps us in our every-day work life. It helps us planning, it helps us defending against the accusation that we were working slowly or providing low quality, (..)"

From the reactions and thoughts shared the researcher concluded, that reflecting on the advantages of reaching a future-state motivated by stimulating intrinsic motivation directly. Furthermore, it seemed that goal setting and goal clarification in the absence of leadership induced self-engagement intensively, and boosted motivation when guided by the coaching.

5.4.6 Plan for fourth coaching cycle

The fourth and final coaching cycle was designed to refine the methods implemented and review the processes designed, to finally provide a description and baseline to the approach developed and implemented at WEB. The purpose of the baseline description was having a benchmark regarding further alterations of the processes and furthermore derive a system for a learning organisation.

For this cycle a final rollout of the Kanban technique was agreed. The plan was to duplicate the Kanban wall, and run both parallel releases in the transparent Kanban mode and commit to this methodology as an organisation. The researcher planned to create and implement a technique for the business analysts to provide a system for prioritisation of new requirements. This technique was supposed to be derived from the estimating technique, basing on the the same principles of relative estimating.

As the researcher decided to leave WEB by the end of June 2014 he had to ensure that all topics were either finished or handed over to other persons. The individual coaching sessions were planned to be kept unchanged in the beginning, while the daily team session at the Kanban wall was meant to be transferred into the hands of the teams.

5.5 Cycle 4: June 2014 Release

This chapter sets out the conclusions from the fourth and final cycle of coaching. The report begins with a brief description of the group coaching conducted during team meetings, and meetings organised to discuss and solve particular issues. The enthusiasm to discuss and solve problems group-wise was raised with empowering the teams to design their own meetings, and unfold their ways of removing impediments in the daily Kanban meetings.

The fourth section provides a detailed look at the core concepts of the coaching framework, its achievements, further tools to be implemented and finally the termination of the coaching, in particular how the gains from the coaching might be carried through post-intervention.

5.5.1 From Group to Team Coaching

For reasons explained in the "Plan of Intervention" chapter and affirmed in previous chapters regarding the coaching cycles, the study involved both individual coaching and a significant amount of group coaching.

Individual Coaching

The individual coaching focused on personal development issues. Six individuals were selected by their function within the group, their eligibility and personality. The initial plan to conduct two one-on-one coaching sessions with each individual turned out to be impractical, and was altered during the progression of the intervention to one 45-minute session per week per coachee, scheduled on Tuesday through Thursday.

Group Coaching

Although group coaching in the first coaching cycle resulted in a broadly successful action plan, widespread dissatisfaction remained due to absolutely contrasting expectations of the other teams and the team managers. The overall group never overcame its obstacle in communication and information flow during the phase of weekly meetings. Many team members found the group meetings on Mondays stressful and mainly perceived it as a waste of valuable development time.

> fdCore1: "I think it's important having made the experience that working as a team requires the individuals' commitment toward team work. Nevertheless, the way to get there was a lot of wasted time and frustration."

The inevitable extra time that group coaching required due its complexity led to impatience and unease with the whole group process. Group coaching expects the group members to have team skills to be successful team members (Whatley 2009).

The researcher regards group coaching as best suited for where group structures are already existent and group dynamics and negotiations are required anyway.

Team Coaching

The introduction of the Kanban board in the second coaching cycle mixed up the foundation for team interaction. It required an entirely new way of communication and provided a natural task transparency, which on one hand protected the individual from scope creep, while hindering individuals on the other hand to hide behind blurred tasks and ambiguous goals. Meetings at the Kanban wall increased the frequency of meeting within the time, while reducing the time of each single session (Appendix E).

The coach actively facilitated the daily meeting in the early stages of team development, and focused towards exploring team interaction, deriving conclusions and giving feedback regarding the execution of the format. The aim of the coaching was a sustained behaviour change, the top indication of successful coaching according to Wasylyshyn (2003). It aimed at organisational performance (Carter 2002), and empowering individuals to gain new skills (Clegg *et al.* 2005). The team coaching as provided at WEB adapted elements of change-based coaching (Wasylyshyn 2003), and performance-based coaching (Berg & Karlsen 2007).

5.5.2 Coaching Framework

This section embraces the persistent themes of the coaching cycles, which needed to be considered to formulate a coaching framework. The hallmark of coaching within WEB was the concealment of the coaching intervention. dWEB understood and expected advantages when applying a coaching intervention to the teams, and he was aware that the management team did not provide transparency regarding their work.

The disconnection of the coachees from defining and clarifying goals, compressed initial goal setting to the few people involved in the coaching, namely and mainly the coach. Within the framework a certain focus needed to be laid on setting clear goals, handing over responsibility and turning theoretical goals into practical implications. To satisfy the conditions as discovered at WEB the coaching intervention needed to strongly focus on generating concrete results.

Ultimately the coaching had to foster teamwork and team solidarity to provide stability to the individuals. The team had to take over the responsibility of providing the security of a stable organisation, which the WEB was unable to provide.

The section concludes by reflecting on the possible effects of terminating the coaching, or handing the coaching framework over to another person to keep working with the team.

Coaching Relationship

A coaching framework basing on inducing change in small steps, has to focus on the coaching relationship maybe even more intensely than a classical approach to coaching. This centrality of the relationship was a key insight emerging from conducting this study. In PMC the emphasis on a trusting relationship is a key aspect of the coaching itself.

The key concepts to establish a coaching relationship from cycle one lay in empowering the team to take personal responsibility to turn consternation into participation. This was supported by removing pressure from the teams by positioning the project manager as an interface between team members and stakeholders.

> bdCore2: "What could be more disturbing than being interrupted constantly. You are working on something, someone interrupts you, and once you are finished you have to start from scratch."

In the beginning the researcher underestimated the issue of establishing a coaching relationship, especially as he was not used to apply coaching techniques lacking an open communication about the coaching. This study demonstrated that an environment of mistrust and frustration could be overcome by implementing the coaching deep into the group and induce change bottom-up from within.

The researcher noted in a memo that "classical project management, concentrating on the iron triangle consisting of scope, time, and budget, taking spheres of influence like quality, stakeholders, and resources into consideration, leads to project failure in a situation like this."

This CS research indicated a difference between releases managed by the researcher, and those managed by the other PMs. It was difficult to disentangle the effect of the researcher being deeply rooted in the group and his way of social interaction, and the effect of applying specific coaching techniques. These differences will be pointed out in a later chapter.

Dulewicz & Higgs (2003) describe management-by-coaching as a leadership-style as combination of emotional competencies (EQ), intellectual competences (IQ) and managerial competences (MQ), according to Bass (1990) and others (Bass, Avolio *et al*. 2003; Bass & Riggio 2006) based on transformational management. Neither EQ, IQ, or MQ alone or in an unbalanced condition are the foundation of successful coaching. This assumption is supported by the team comments:

> bdCore1: “It's a big difference to report the status to someone who is interested in progress, problems and challenges, rather than someone who only wants to report figures...”
>
> mdCore2: “...and doesn't even listen. <pm2> starts every sentence by saying 'Watch Out' - he should watch out - watch out for what is happening.”
>
> fdCore1: “ It's also a matter of respect. Whatever we say, he always implies unwillingness. That is insulting. And when you have experienced this implication for several times you stop trying hard. It's disenchanting.”
>
> fdCore2: “And honestly - I not only avoid spending time with him whenever possible, I do also think that he is not able to understand and interpret the status' he receives correctly. It's very simple: shit in, shit out.”

In PMC at WEB building relationships was an on-going process, which had to be adjusted with respect to challenging circumstances, changing conditions, and volatile team structures. Coaching as a management-style involves building relationship based on personal, emotional, and inspirational exchange (Bass 1990). Coaching techniques that fostered relationship, trust, and team building were a crucial element of the coaching itself, rated by the team members as even more important than managerial and intellectual skills concerning project management. It had to be included into the coaching model, and implemented into the cycle of continuous follow-up.

Concrete Results

The study revealed that leadership-by-coaching embedded in this environment had to support the coaching relationship by focusing on the practical. The circumstances did not allow the researcher to explain the coaching cycle to and involve the coachees into it. In so far the coaching did not concentrate on abstract concepts, but on concrete results, which the coachees believed they would benefit from. A goal with no immediate effect was not worth achieving for the developers at WEB.

In PMC the business outcome is the motivational factor for the teams and the only benchmark for measuring success of the coaching. The intervention at WEB was impaired by the paradigm of secrecy, which prohibited the coach to focus the intention on change. Focussing on concrete results was the only suitable way for this course of action. With regard to the coaching relationship the researcher had to consider on whether a result was ideal for the coach or the project, and the practical relevance for the coachees.

The researcher summarised in a memo:

> "The only way to progress with the coaching regarding a significant behaviour change in the organisation, is to induce and support on-going progress in increasing the quality of the project work. The coachees are not aware of that, but they expect to see progress. Even if the coaching does not solve, yet does not even address all problems, a significant change in social interaction, relationships, and trust within the team has already started. I think that these social factors address the core problem. The three groups work, interact and think like a team for the first time now."

Iterative Progressing

Scepticism in a group can be overcome if it is ignored in favour of action towards the desired culture and organisational behaviour. The coaching had to provide the opportunity for the teams to make this experiences as often as possible by focusing on practical results.

Traditional Coaching

The researcher prepared for the first coaching cycle guided by the assumption that the coachees would be formally introduced to the process. Although the researcher knew that some authors proclaimed that the process of coaching did not require being formal (Whitmore 2002), he was not certain about process initiation, without uncovering the coaching intervention.

This pre-requisite prohibited the coach to involve the coachee to actively participate in the diagnosis and planning phases. The diagnosis could only be done by observation and activating discussions between the coach and the coachees.

Cultural Hacking

The coach doubted that he could gain goal commitment regarding organisational goals from the team members, when he was not initially allowed to explain the approach of the intervention. To overcome this issue, the idea of "Cultural Hacking" (Hofstede *et al* 2010) came up. It combines the idea of "hacking" - examining and changing a system from within - with culture.

One core feature of "Cultural Hacking" is that it does not require systematic goal setting. In "Cultural Hacking" change can be addressed without prior goal setting and planning sessions. Due to the simplicity of the concept it can be explained quickly, adapted easily, and distributed within an organisation effectively.

"Cultural Hacking" refers to sticking to a state of civil disobedience, with the intent to cause a permanent behaviour change aiming at relieving the pressure of the hack. At WEB the quality and accuracy of meetings was identified as one of the keys to organisational inefficiency. After the researcher motivated the coachees to elaborate rules for increasing the quality of meetings, the coachees adopted the approach, and started distributing it after being briefed by the coach. The intervention originally implemented by the researcher was taken over by others who induced a multiplier effect. Although meeting quality had increased, the level of success had a good chance of being dependent from chance.

The "Cultural Hacking" approach supported the researcher's assumption that coaching without team involvement into the diagnosis and planning phase, had to focus on practical effects. The results of the practical had the power to substitute goal definition and action planning.

Putting agile elements to the coaching

The second cycle of the coaching aimed at turning the group of developers into a joint project team. A project team is a temporary organisation consisting of people, who share responsibility for reaching a shared goal (Banham 2009; Horner-Reich & Sauer 2010). To introduce the concept of sharing, the agile concept of a Kanban board was introduced.

Instead of scheduling a weekly team meeting in a meeting room, the coach scheduled a daily team meeting in front of the prepared Kanban board. The researcher facilitated the meeting on status reports by concentrating on requirements rather than tasks of individuals. The shorter reporting cycle scaled down the interval of development to be reported.

Combining the traditional with the iterative approach

In cycles 1 through 3 the foundation for transparency with establishing the Kanban board, and working as a joint team, was laid. In cycle two the responsibility for planning was transferred from the team managers to the teams, and the developers were involved into the early stage of analysis, by involving them into the business analysis process. Cycle three ultimately focused on forming a team and fostering teamwork, and considering both long term and short term goals in the coaching intervention.

To make all goals actionable in terms of options, the coach followed the agile approach of slicing stories (Schwaber & Sutherland 2012) to break them into smaller pieces until they could be expressed as set of options, ready for sequential experimentation. The result of the experiment was assessed, and triggered the next option to be experimented. The failure of a single option could prove a set of depending options or even an entire goal as impractical, and therefore dispensable.

The iterative approach to coaching is an on-going process of reappraising action plans and options, providing a strong focus on iterative progressing and generating practical results.

Team-Mindedness

The social environment provided by the team was indispensable for individual action planning and achievement of individual goals. As every team member was an

influencing factor for the social environment, the coaching framework needed to take team-mindedness in close consideration. Many authors (Mickan & Rodger 2000; Marks, Mathieu & Zaccaro 2001; Wheeler, Hihn & Wilkinson 2002; Dionne *et al. 2002*) agree that team processes contributing to team effectiveness are communication, decision-making, cohesion and cooperation.

Communication

Open and easy communication within a team is critical for goal accomplishment and completion of regular, daily team activities (Dionne *et al. 2002*). To address the issue of open communication a daily meeting at the Kanban board was scheduled. The daily discussion and presentation furthermore fostered teamwork by asking the team to include know-how into the solution finding process.

Decision-Making

Individual autonomy may decrease as decisions are shared and responsibility diffused to all team members (Kirkman & Rosen 1999). Working out the action plan in the team, and perceiving it as a framework to derive individual actions from, was revealed by the group sessions as very beneficial for the team. Group sessions furthermore provided the advantage that all individuals shared the same state of knowledge, as knowledge could easily be spread and shared in group sessions.

Cohesion

The team member's personal attraction to the team and the tasks is acknowledged as team cohesion. Socially, members feel as if they belong and want to remain with the team for future tasks (Mickan & Rodger 2000). Besides setting-up small team sizes, similar attitudes and physical proximity (Mickan & Rodger 2000), cohesion can be fostered by accurate performance feedback, success in adversity and good communication.

Cooperation

Cooperation of team members is characterised by the ability to solute conflicts in a productive way. Dionne et al (2002) concludes that positive team conflict management actions have a positive influence on team performance. Destructive team conflict often has an interpersonal basis in work role or organisational factors. Conflicts are destructive when tension within or between groups is such that it

impedes members from thinking clearly and making sound decisions (Dionne et al 2002).

5.5.3 Data collection and analysis

Basically the methods of gathering and analysing data remained unchanged. The Kanban board was well established for discussing any issue regarding the release and provided input for daily stand-up meetings. pmE1 created a new Kanban process, which allowed all project data to be updated automatically in one place and printed in the form of a Kanban card. With this function implemented the PM were enabled to automatically provide management summaries and project reports on a daily basis.

The usage of a centralised automated tool made the Kanban board in the developer's perceptions now an official tool and underlined that the introduction of the methodology was now officially accepted and final.

The researcher intensified the one-on-one coaching sessions with original group of coachees during the course of the final cycle. Once it became apparent that the researcher was about to leave WEB, a debrief process needed to be worked out and established. Due to the growing trust between coach and coachees some of these coaching sessions were recorded using a voice recorder, transcribed and coded into the evolving note-taking software.

5.5.4 Major Themes

The on-going coding and interpretation resulted in three major themes, which are set out here and explored in greater depth during the course of this chapter.

Relative Estimating

Estimating tasks is always challenging, as estimation highly depends on the personal qualification, experience and skill level of the person who does the estimate. Therefore, estimates are highly person related and cannot easily be transferred to others. For the WEB team comparability and exchangeability of estimates and tasks was necessary to effectively distribute the work. To overcome this issue, a unified approach to estimating and prioritisation of requirements was designed and

implemented basing on the principles of relative estimating (Schwaber & Sutherland 2012).

The traditional way of estimating tasks in projects is done by guessing the required effort individually. Estimates in project planning are mainly expressed in a multiple of *man-days* and *duration* (GPM 2011; PMI 2013; TSO 2009). *Man-day* represents the value of how many days of effort would one person need to spent if s/he fulfilled the task alone. The duration refers to the timeframe to which the work can be allocated.

Estimating the effort of a task depends on the experience, knowledge, and skills of the estimating individual. This process of estimating bears a major disadvantage when it comes to team work, where tasks are not necessarily completed by the person who did the estimate.

Instead of focussing on effort the team decided to focus on task complexity, performing relative estimating (Schwaber & Sutherland 2012). The team assigns "complexity points" to the tasks, beginning with the task they felt most confident about. All other tasks are rated in complexity in relative comparison to the first task, until all team members agree to the estimate concordantly.

The approach helped transferring the issue of estimating from personal dependencies to group competencies. All estimating work was done in consensus at the Kanban board, where the results were captured and published. In this release the Kanban board was enriched with information regarding the complexity and effort required to get the tasks done.

Root Cause Analysis

Dealing with errors, mistakes and "bugs" is often highly related with the culture of the organisation. In an organisation focussing on result quality, an error count might be used as indication for software quality. A culture that punishes mistakes might seduce people to either spend a high amount of effort for avoiding or, if not possible, clouding errors.

Instead of punishing errors, WEB decided for taking errors as chance to foster the learning of the organisation. Despite acting in a zero-error-policy environment the team decided to analyse the reasons for errors made and publish them openly towards

the management, by conducting *Root Cause Analysis* sessions in their retrospectives. In *Root Cause Analysis* a factor is considered a root cause when its removal prevents the unwanted event from recurring.

The top three root causes were prepared in a presentation, including a detailed description of the causes and a mitigation strategy how to avoid repeating the error. The first cycle of *Root Cause Analysis* revealed organisational issues. It opened a discussion regarding the quality of testing and creating test cases, which were not suitable for identifying mistakes early.

Termination

The researcher's decision to leave LCO after being commissioned for one year raised the question how to fade out the coaching, how to anchor methods introduced, and how to develop the tools implemented. The chapter concludes with suggestions of practical implications for the time after the coaching was finished. Coaching authors (Clegg *et al.* 2005; Kilburg 1996; Wasylyshyn 2003; Whitmore 2002) highlight potential difficulties with terminating a coaching relationship. Leaving the organisation was considered disruptive as the changed methodologies had been developed and implemented with the teams. In a memo the researcher noted:

> "Once the project management withdraws from caring for the people and focusing on the technical aspects only, a lot of energy is wasted by the teams to maintain their team structures against the influences of the PM. The coaching had introduced systematic elements - in Scrum terms 'ceremonies' - to the projects and the team culture, which need to be supported and trusted in by the PM. The lack of trust and knowledge on PM side raises anger and frustration and causes any possible interruption."

fdCore1 reflected on the different styles of PM:

> "I never thought that individual behaviour, motivation, team spirit, are so highly dependent on the PM style. Working on the releases over the year is like running on a sinus curve - some PMs create a positive peak, while others don't and never will be."

This finding motivated the researcher to discuss this issue with dWEB. He revealed his insights on the effects and consequences created when the releases were managed

by the wrong people and suggested to empower pmE1, who was accepted by the teams and was involved into and informed about the researcher's approach to coaching at WEB. dWEB revealed that he was planning to re-organise the ProgM team and promote one developer to PM. The researcher summarised in a memo:

> "With the organisational change announced by <dWEB>, none of the coachees sees the ending of the coaching intervention as insuperable. There have been quite emotional phases, but after four cycles of coaching the techniques and tools have been established and the team's self-confidence has increased. On the personal level the departure will be sensed as a loss - but there is no emotional dependency."

If the coaching had not reached a productive outcome the ending may lead to dissatisfaction and a loss of the built self-confidence and dismounting of the new tools and methodologies.

5.5.5 Summary

These last four chapters have reported on and analysed the process of delivering project team coaching as a leadership-style in project management. It was revealed that coaching as leadership-style can be applied to individuals and teams but requires close attention regarding establishing the coaching relationship, especially when not formally introduced as an intervention. Focussing on goals turned out to be a key element of the coaching, like taking small steps, following an iterative approach helped stabilising the team by creating situations of gained success. The chapters also revealed profound limitations of PMC and the importance of choosing the right coaching context. The coaching cycles suggest that PMC is a flexible approach to successfully navigate through instability and mistrust, providing that due attention is given to addressing those issues. Acute challenges of group coaching, covering the challenges of forming a team, building team structures, providing a trustful environment and embedding the team successfully into the organisation, need to be approached selectively and skilfully. PMC turned out to be an effective method at WEB for raising team performance and individual commitment in a highly performance driven software development context.

Significant learning points have been highlighted, which will be explored and considered from a more theoretical perspective in chapter six. Chapter six will expand the theoretical concepts behind PMC and focus on developing a theory to enable the conclusions of this study to be transferable to other contexts and provide an overall theoretical framework.

The next section will provide an overview on how success was measured at WEB and how the coached release cycles had been rated. A short report follows on how the introduced tools and techniques had been accepted and developed in the time after the coaching to provide a brief indication of sustainability of the intervention.

5.6 Evaluation of Project Success

The operations team recorded and assessed errors during the go-live phase of the projects and documented the results to assess project success. The availability of this data for the researcher provided the possibility to compare recent with historical project results to derive an understanding of the team's progress over time. This comparison does not provide generalizability, but indicates and supports triangulation.

The roll-out of the software discharged into a phase of stabilisation managed by the operations team. In this phase the software was scrutinised and occurring errors systematically recorded and assessed. Errors rated “critical” or “severe” had to be fixed immediately, “medium” and “low” rated errors were assigned as open errors to the following release. The error ratings were used to calculate an error value by assigning scores to the error levels and number of released hotfixes.

$$\frac{1(minor)+5(medium)+10(severe)+20(critical)+15(hotfix)}{mandays}$$

Figure 5-11: Quality Evaluation (developed by Author)

The result from this formula is the ratio between error points and effort in man-days. A result of 50% was interpreted as every second man-day generated a defect.

Operations reported the following results for the releases basing on this formula (an example for a result report can be found in Appendix F):

Release	Effort (MD)	Error Level					PM	Points	Ratio (defects/day)
		Critical	Severe	Medium	Minor	Hotfix			
Sep 13	293	4	3	1	4	4	pmSH	179	61,09%
Okt 13	418	3	3	2	2	3	pmTB (pmAR)	147	35,17%
Nov 13	384	2	1	2	3	1	pmAR	78	20,31%
Dez 13	463	5	4	2	7	4	pmTB	217	46,87%
Feb 14	527	0	5	2	5	1	pmAR	80	15,18%
März 14	500	5	1	3	3	2	pmTB	158	31,60%
Apr 14	424	0	1	1	3	0	pmAR	18	4,25%
Mai 14	294	2	0	0	0	2	pmMS	70	23,81%
Juni 14	245	0	1	2	2	0	pmAR	22	8,98%

Table 5-2: Quality Evaluation (developed by Author)

As there was no systematically approach in place, the historical data regarding the 2013 releases prior to September were not available for the researcher. RG from operations reconstructed them and reported an average defects/effort ratio of 43% for the year 2013.

The average defects/effort ratio for the releases following a coaching model (operated by Researcher and pmE1) was 14.5%.

The data do not bear significance, and the differences of the settings provide a variety of explanations for the variance. But the deviation in figures may indicate the impact of coaching. Levenson (2009) supposes in his CS research that there are individual actions or behaviours whose effectivity directly depend on the presence or absence of coaching, like releases managed by the researcher, and releases managed by classical PMs.

CHAPTER 6: Main Findings and Conclusions

The final chapter will discuss the key findings of the study focusing on the primary learning points from both theoretical and practical aspects.

The initial theoretical research revealed a blind spot regarding coaching in project management. There are discussions going on whether being a coach is a profession or a role, but it is always strictly separated from the PM. The literature and professional project manager education focuses on tools, techniques and best practices of managing a project, while the aspect of leadership in project management, and considering suitable leadership-styles for projects falls short in actual considerations. This not only seems to influence the outcome of projects but also embosses the role model and capabilities required from project managers.

In this practical action based research a coaching system to be used by the project manager was developed and applied. The chapter will continue by proposing a coaching process based upon this practical research including indications of situations where the model would be most useful. Finally, the chapter will identify limitations of the study and reveal areas for future research.

6.1 Main Findings

Only few consider the project manager in the role of the coach, while no research was found considering the project manager in the role of the team coach. Consolidating both roles in one person, yet implementing the coach in the role of the PM, is a new approach, which has not been discussed in the literature. While the study confirmed that project management-by-coaching (PMC) is a beneficial approach to project management regarding team performance, its application under unplanned, yet challenging conditions revealed a higher flexibility of the approach than assumed and led to some surprising conclusions.

To provide a valid answer to the question

> *How does project management-by-coaching as leadership-style of the project manager contribute to project team performance in German software development projects?*

the effects of PMC on project team development and interaction, team member's satisfaction, and team member's collaboration and efficiency, necessarily need to be explored and consolidated to develop a theory of PMC based on exploration.

This chapter consists of six sections, which explore PMC's effects. The first three reveal unexpected conclusions, while the last three refine more predicted conclusions.

6.1.1 PMC in Context

The initial assumption for this study was that PMC consisted of two distinct roles combined in the person of the researcher: project manager and coach. While the role of the coach was expected to be centred on facilitating effective goal pursuit (Kirkman *et al.* 2004), the challenge of establishing relationships was considered as a function of the project management and therefore as marginal for the coaching (Marks, Mathieu & Zaccaro 2001; Wheeler, Hihn & Wilkinson 2002; Dionne et al. 2002).

The initial conception of the study focussed heavily on the role of the project manager perceiving the coaching as a subordinate function of project management (Turner 1999; Geoghegan & Dulewicz 2008; Berg & Karlsen 2007; Nixon, Harrington & Parker 2012). Possible contextual issues that could present barriers to coaching have only been acknowledged insufficiently. The study strongly suggests that it was incorrect to separate goal finding and relationship aspects from the coaching.

Although the study was not set out to explore the coaching relationship in PMC, this became the major discovery. Establishing and obtaining the coaching relationship was the consistent theme running through all phases and cycles of coaching. The decision not to reveal to the coachees that they were participants in a coaching intervention, prevented the coach from fully involving the coachees in the diagnosis and goal-finding phase. But still the coachees perceived the researcher's deep involvement and participation as going beyond the PMs responsibilities.

After establishing relationships, the whole team was involved in the process of goal finding. The engagement demonstrated by the joint team, finally turned out to be the leverage to include the management team into the process (Kirkman *et al.* 2004).

dWEB called this a “major achievement”, emphasising the importance of both relationships and the coaching context to the success of PMC (Berg & Karlsen 2007; Carter 2002; Clegg et al. 2005; Mulec & Roth 2005; Perkins 2009). This study shows that PMC without considering the wider contextual issues is ineffective. PMC turned out to be effective when established in a narrow context, setting practical affecting goals (Grant 2006; Perkins 2009; Greif 2010), and opening the funnel for issues with respect for the level of development of the coachees. Finding the adequate fosters performance and motivation of the individuals to fulfil their tasks and contribute in forming an effective project team (Whitmore 2002). The coaching in PMC is best viewed as a moving, flexible and dynamic conception.

6.1.2 PMC Formats

As project management nearly always addresses groups of people the coaching was planned as being not-person specific change-based workplace coaching (see 2.2.2.1) and performance-based business coaching (Bono *et al.* 2009; McGill 2010). While workplace coaching mainly aims at learning and integration, business coaching aims at developing the entire business organisation (Clegg *et al.* 2005). dWEB’s main reasons to support the coaching was his intent to increase the teams’ performance with regards to development, speed and quality.

PMC involves aspects of change from life coaching (Grant 2001; Spence & Grant 2007) aiming at behavioural changes (Kilburg 1996; Spence & Grant 2007; Wasylyshyn 2003) and enabling individuals to gain new skills (Dagley 2010; Levenson 2009), with the goal to increase performance by enabling individuals and empower teams (Hackman & Wageman 2005; Whitmore 2002; Ba Banutu 2012). These interdependencies and relations between person specific and not-person specific approaches to coaching are only insufficiently addressed in the coaching literature.

From this study the conclusion can be drawn that individual coaching is best suited for earlier stages of the process. It helps finding supporters for the intervention, and implements allies who deliver early input from the team to foster goal setting and action planning. The more specific plans get, and the more teamwork is required, the coaching needs to be tailored to the circumstances and needs of the teams and their joint planning and co-working.

6.1.3 PMC in Challenging Situations

The most unexpected and surprising, but very positive perception for the researcher was that although conducted under unusual challenging conditions, the coaching continued and succeeded, and seemed to compensate the circumstances. To establish the structures required for successful project management, the coach had to compensate the lack of leadership and its emotional aspects (Hackman & Wageman 2005).

These multiple problems challenged the researcher to redirect a large amount of time and activities to provide individual and team coaching going beyond the underlying coaching goals derived from the project. This finding suggests that a challenging environment is not necessarily a threat to coaching. Furthermore, the study substantiated that

- options chosen may be wrong, as long as alternatives had been formulated to be tested in a following experiment, and
- solutions do not have to be perfect for the team members and teams to be willing to commit to, as long as they are convinced that they are based on the best available option.

Additionally, it seemed that challenging conditions enhanced the teams' desire for stable team structures, processes and primarily reliable leadership. The lack of reliable leadership seemed to inject greater realism regarding project goals, effort and duration estimates, and with raising engagement the willingness to take action.

The arising of new challenges can be a signs for progressing from one level of problem to another assisted by the coaching (Greif 2010; Berg & Karlsen 2007; Clegg et al. 2005; Mulec & Roth 2005; Kilburg & Levinson 2008). Coaching relieves the development from taking personal responsibility, taking responsibility for the team, and finally for the team to take responsibility and jointly progress through various levels of goal pursuit (Berg & Karlsen 2007; Douglas & Morley 2001).

The study illuminates that coaching does not provide ultimate problem solving. Especially PMC rather focuses on showing possible ways by presenting different options and enabling the coachees to take their individual route of action.

6.1.4 Role of PMC

The study suggests that individuals and teams, who constantly experience failure or limited success, whether through insufficient skills or inadequate leadership and feedback, become trapped in a cycle of low performance (Wasylyshyn 2003), resulting in a detraction of self-belief and motivation (Brotman *et al.* 1998; Spence & Grant 2007). The role of PMC is to help creating an environment for generating positive real-life experiences providing a significant influence on the individuals' and teams' performance. PMC focusses on options that result in practical actions. The coach encourages the coachee to continuously take small steps and review the results in a continuous follow-up cycle. The PMC approach aims to stimulate effective team action and altering social interaction, so that options can be experimented to effectively accomplish project goals and tasks.

The underlying psychodynamic causes of behaviour are not in focus in PMC, due to the time restrictions that come along with projects. PMC does not necessarily strive for improving the team situation. It is therefore inappropriate for situations where personal transformation going beyond team functions is required. It is neither therapeutic nor focused on supporting individuals in challenging personal situations.

6.1.5 PMC Drivers

PMC is an option-driven approach, aiming at guiding individuals to take small steps and implement change iteratively (Richard 2003). The study confirmed further clarity to the distinction between goal setting, action planning and designing options (Greif 2010; Clegg *et al.* 2005; Latham 2007; Perkins 2009).

Goals for coaching are derived from project goals. Initial goals might be general, fuzzy and unclear (Wasylyshyn 2003), so the coach in PMC must aid the coachees to set the right combination of goals and foster continuous revision to ensure they are clear and specific. Deriving concrete actions helps clarifying goals. In order to determine the most realistic course of action a set of alternative options is derived in PMC. An option is a self-contained unit work, which can be implemented and leads to a defined result. It is acceptably small to be implemented in a short period of time, and can be rolled back in case of non-acceptance (Richard 2003).

Identifying options leads to a workable action plan (Richard 2003; Berg & Karlsen 2007; Kilburg 2007). Its design is cyclical and iterative and provides continuous alignment with goals and its derived actions. The cycle of experimenting options and feeding its results back into the diagnosis process increases the precision of goals. With a preserved sense of realism, the coach is required to evaluate which options are best, to constitute a workable action plan.

Therefore, PMC is a broader and more flexible approach than classical coaching. The findings from the study suggest that coaching in PMC is a very dynamic process, as the coach is constantly required to balance the influence of project stakeholders and project goals, and match it with iterative processes of goal setting, action planning, and developing options.

6.1.6 Motivation in PMC

Contrary to the researcher's expectation, goal setting and goal clarification stimulated extrinsically motivation by inducing self-engagement in the absence of leadership, and boosted motivation when guided by the coaching. Intrinsic motivation was induced by reflecting on the advantages of reaching a future-state of teamwork and organisational structures (Kirkman & Rosen 2004; Mickan & Rodger 2000; Bass & Avolio *et al*. 2003). Extrinsic motivation only lasted as long as goals did not directly conflict with the person's other goals. The study depicted motivation in PMC as an iterative and fluid element of the coaching. The study clarified that especially focussing on practical actions as early as possible helped to boost motivation at a very early stage of the process.

Based on this study, it is suggested that motivation in PMC is based on the following levels:

1. Establish an atmosphere of coaching. The coachees were invited to help creating an environment of overcoming processes and procedures from within, without being officially involved in a coaching program.

2. Make people involved participate in goal setting. The act of setting an effective goal contributes significantly to the motivational impact of the goal in terms of goal-commitment.

3. Derive an initial action plan from agreed goals, and make people involved develop options to refine the effective route of action. The experimentation of identified options enhances self-efficacy, and triggers intrinsic motivation for the execution of goals.

4. Validate options. Having a validated set of options, which orients on practical impacts that deliver immediate benefit to the coachee, generates increased motivation and commitment to implement it.

5. Make progress transparent. Transparency and establishing a positive error culture supports learning from past actions and maintains on-going commitment.

Undergoing the process of internalisations fosters intrinsic, and therefore long-term motivation. Intrinsic and extrinsic drivers exist in the project and the coach in PMC needs to stimulate them adequately.

6.1.7 A Reality-Check for PMC

There have been many considerations and explanations why coaching interventions need to be opened with establishing an adequate atmosphere (see 6.1.6). To do so ethical considerations demand the coach to inform the participants about the methodology, tools and the course of action to be taken. Furthermore, discussing personal goals and areas for personal development require a trusting, open and honest relationship (Grant 2001; Spence & Grant 2007), based on well-founded reasons for individuals to share personal aspects of both, their individual and team life. To increase performance by enabling individuals and empower teams (Hackman & Wageman 2005; Whitmore 2002; Ba Banutu 2012) a coaching intervention needs to be accepted by both, the individual and the team.

Due to the situation of the researcher being officially prohibited to announce the approach as an approach to coaching, the researcher had to induce and use tools of coaching without introducing them officially. Yet, on a methodological level the approach of conducting action research could not be officially revealed. The researcher had to conceal the research part of action research from the participants. Only in the second half of the second research cycle the researcher revealed the approach to individuals of the teams whom he expected to participate after being involved even more intensely.

Action research, with a researcher participating and interacting with the subject to research, requires reality-checks and adequate adjustments. An important finding was that real life situations require the approach to be continuously challenged, adapted and ethically re-considered. Theoretical considerations are important for proper planning and the rigour of the approach. But action research also needs to be flexible enough to react to unforeseeable challenges and changes based on real life situations, which the researcher needs to cope with. In so far theoretical considerations regarding the approach need to be adjusted with reality continuously.

6.2 Definition and Process of PMC

From the practical findings and consolidation of approaches a process of PMC (Figure 6-1) will now be synthesised, setting out all stages and main learning points.

6.2.1 Contribution of Study Aims to PMC Process

The study hypothesised (see 1.8 Research Question) that team coaching could be implemented in a project organisation by defining agreed team goals along the given project goals. This concept manifested during the process and is the anchor for the whole planning phase in PMC. It compartmentalises *Planning* in three sub-processes: *Goal Setting*, *Action Planning* and *Options Development*.

The research furthermore aimed at exploring the effects of PMC on project team development and interaction. Where commitment turned out to be a main driver in the planning phase, motivation showed to be the one for the execution phase. Execution in PMC means conducting experiments by testing options. In *Execution* the teams need to be supported to remain or become most effective, to lay an emphasis on effective communication within the team and organisation, and to provide and preserve trusting relationships.

Exploring the effects of PMC on team member's satisfaction had a strong influence on the opening and closing processes in PMC. The braces for team member's satisfaction are set in *Opening the Coaching* and *Evaluation*. Where PMC opens with role clarification, establishing a coaching relationship and generally building trust, it finishes its coaching cycles with monitoring process and providing feedback, before opening the next cycle of coaching.

Exploring the effects of PMC on team member's collaboration and efficiency helped the researcher to balance the process steps and phases according to the team member's needs and finally helped to formulate a theory of PMC in form of a universal process of PMC to be explained in detail in chapter 6.2.3.

6.2.2 Defining PMC

Theoretical considerations for defining an approach to PMC and finally concluding in a theory of PMC in form of a process of PMC reflect both, the findings from the literature synthesis as well as methodological deliberation.

Impact of Methodology

The general purpose of all research is to generate new knowledge (McNiff & Whitehead 2011). The initial theoretical research on the research question: "How does project management-by-coaching as leadership-style of the project manager contribute to project team performance in German software development projects?", revealed a blind spot in the literature regarding coaching in project management.

To answer the question and fill the gap a critical realist epistemological paradigm adopting a case study action research, following the grounded theory methodology was chosen.

Case Study

During the course of action multiple problems challenged the research. It is common sense that software projects are constantly influenced by change, transformation, and uncertainty, and that requirements are subject to continuous alteration and change.

Due to the increasing complexity when many factors either directly or by interference influence a system, a clear causality might only be shown when concentrating on isolated factors while ignoring others. To help focusing on the focal points in the projects and to focus on complexity, each cycle was designed as instrumental case study. The effects of PMC on teams were the underlying phenomenon for which the case was an example for. Separating the coaching cycles as multiple case study allowed the observation of behaviours occurring outside the control of the researcher (McGill 2010), by exploring phenomena from multiple perspectives within their real-life context (Simons 2009).

Ethnography

The interpretative approach is the classic approach to doing a case study and is often called ethnographic approach (Thomas 2011a; Stake 2000). Ethnographers aim to get into the centre of a culture with which they work by becoming members of the culture. Exploring the effects of PMC on teams from the perspective of the project manager requires the researcher to integrate into the culture of the project team or in cases of organisational development, build it.

Direct observation, informal discussions, and structured and semi-structured interviews are the first choice of tools for the project manager to collect data from within the project culture. In so far ethnography appears to be the best suitable explorative approach for a coaching project manager.

Action Research

The researcher's engagement is characterised by involvement in software development projects, direct interaction with stakeholders and leading, directing, and building project teams.

At LCO the researcher had to face the challenge of merging three teams, which were managed following different approaches. Setting up a joint team culture was of great importance. The researcher generated data using participation, observation and interaction. This study's approach is characterised by integral and participative involvement of the researcher in projects. The researcher is making vital decisions that influence the data generated, such as team member selection and study design.

To explore the effects of coaching provided by the project manager a clean separation between the researcher and object of analysis is neither possible nor desirable (Smith 1998). It is therefore argued that Eden & Huxham (1996) identified the intent to effect social change in actual practice the most elementary feature in action research, with a researcher highly interacting with the subject to research and the purpose to incorporate the change into the research process itself (Easterby-Smith *et al.* 1991). It is appropriate for exploring novel and complex research phenomena.

Critical Realism

Critical realism looks to explain the social structures and events that create observable effects, which might be caused by social structures, which are unobservable, but yet real (Miles & Huberman 1994). Robson (2003) endorses

critical realism as the research paradigm of choice for most social scientific research. Critical realist approaches seek to establish the way different factors act against each other in reality, rather than isolating events from the flow of reality as in the traditional scientific model (Charmaz 2006). In this research critical realism was chosen, because it recognises patterns, tendencies and social mechanisms in social phenomena (Miles & Huberman 1994; Robson 2003), and therefore fits to iterative, recurring processes.

Grounded Theory

The grounded theory methodology defines a theory as derived from data, which was systematically gathered and analysed through the research process (Strauss & Corbin 1990). The central features of grounded theory are its concern with the development of theory out of data using an iterative process (Bryman & Bell 2011). The development of the research question was an iterative process, as well as the process of PMC itself. The task of a practitioner-researcher is to show how to connect educational theorising and practice improvement (McNiff & Whitehead 2011).

Strauss & Corbin (1990) encourage an approach to grounded theory which forces the theory by formulating structured questions, basing on general ideas of where the research to begin. According to Strauss & Corbin (1990) the theory is not grounded in the data alone, but interpreted by the observer. This exactly the procedure of how data was derived, analysed, coded and interpreted in this research.

The process of PMC was created by gathering data through interaction with the project teams by action research, following an ethnographic approach of getting into the centre of the project culture, using case studies to handle complexity mainly induced by the surrounding environment, basing on a grounded theory methodology to develop PMC out of data using an iterative process. PMC was created using conceptual tools to abstract the transferable, theoretical element of the research (Miles & Huberman 1994). As interpretative research follows the logic of replication, not sampling (Yin 2012), this study was not sampled from a general population.

Impact of Theoretical Research

The findings from the literature review (see chapter 2.4) guided the research process following the methodology chosen (see chapter 3). The findings from the research process (see chapter 6.1) were derived from answers to the questions raised in the theoretical part of the research. The link between findings from the literature and findings from the research are provided in figure 6.1.

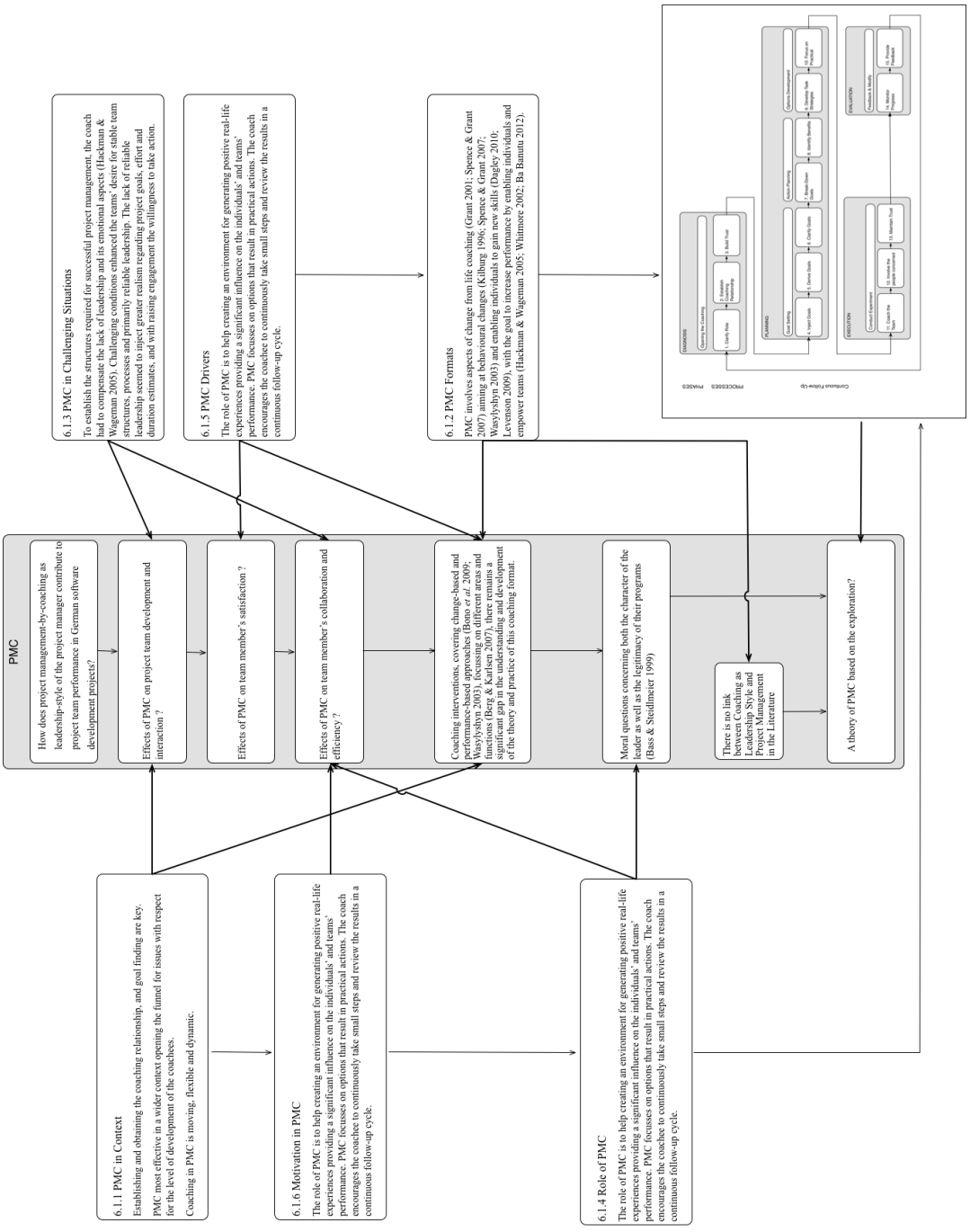

Figure 6-1: Findings Linked (developed by Author)

From the practical findings synthesised with the theoretical considerations this study defines PMC as

> *a consultative approach to project team coaching to address thinking and behaviour patterns by applying person-specific change as well as result oriented foci.*

6.2.3 Process of PMC

When applied to other projects not all of these stages might always be necessary.

1. *Role Clarification* - The main focus in PMC lies on project management. The PMC practitioner's admission usually comprises all tasks related to managing and executing projects. In PMC coaching is a subordinate function to the project manager role. Transformational leadership can be applied by the PM either to help the project team to increase efficiency or to change the organisation. When discussing the possibilities of coaching with the sponsor, it is crucial to clarify the role of the PM and the function of coaching.

2. *Establish Coaching Relationship* - In PMC the project manager complements classical project management techniques with transformational leadership and emotional intelligence. Team and individual development related activities are fostered by leadership from behind and avoiding to influence the coachee (Bresser & Wilson 2006). In this function the project manager is inclined to give as little advice as possible (De Haan 2008) and be non-directive (Passmore 2010). The coachees need to perceive the PM as enabler for project team performance.

3. *Build Trust* - For the coach the process of building trust starts from day one with establishing a coaching relationship. A good practice for coaches is to check that the coach's role is that of a facilitator rather than provider of advice. The coach should ask for the coachee's perspective to help the coachees create a more productive environment. The coach needs to include the coachees' knowledge, experience and best practices into the process of finding solutions.

Figure 6-2: PMC Process (developed by Author)

The first three processes open the coaching within diagnosis, but they might be subject to adjustments regarding the outcomes and the intensity of the coaching. The following planning phase continuously tries to identify and breakdown goals into workable patterns by setting goals, plan actions and develop options. The underlying processes in PMC are:

4. *Inject Goals* - While PMC is a non-directive approach, project management is directive. Project goals are derived from business needs. The PMC practitioner is required to effectuate acceptance for goals ascertained by external stakeholders. Securing the acceptance of ownership is a key activity the project manager needs to provide and review.

5. *Derive Goals* - While achieving project goals, the practical focus of the team might elicit additional team goals to foster the process of project work. The PMC practitioner needs to evaluate team goals in relation to the project, and develop them while the project is being executed. Therefore, it might be necessary to formulate rough goals and develop them from abstract to concrete during the project runtime.

6. *Clarify Goals* - Goals are one of the measures for project success and one of the main drivers for motivation. Therefore, setting fuzzy goals needs to be avoided. It is the project manager's responsibility to clarify external project goals, as well as the coach's responsibility to help the coachees develop proper goals. Goals need to be challenging to motivate, but attainable and well defined.

7. *Break-Down Goals* - In project management goals are broken down into workable items by creating a WBS. In PMC coaching goals are reduced using the same method, to develop an action plan. It delineates steps to be taken, the order of the steps, and the duration required to achieve a goal as individual and as a team.

8. *Identify Benefits* - Every goal provides a benefit - either for business purposes or for the organisation. Injected goals usually facilitate business goals, while derived goals support organisational matters. As goals may appear intimidating when firstly encountered, gaining transparency regarding the expected benefits of achieving the goal is beneficial.

9. *Develop Options* - Once actions have been planned, it is necessary to develop options to determine the best available method. Options are considered alternative routes, or identifying different strategies for achieving the tasks. Although options

might be contradictory, they aim at reaching the same result. By trying which option fulfils which task most effectively, the best choice of options is identified. The best options represent the ideal route for reaching a goal derived from the small steps taken.

10. *Focus on Practical* - Focussing on small practical steps helps individuals and teams to experience success as an on-going process closely related to the work the team can supply. The attention needs to be led from a stance of indifference to one of active concern, in particular by focusing on an achievable goal.

The phases in PMC may not be misunderstood as sequential. While new goals are identified others are being transformed into workable and actionable chunks. The planning phase is the most complex phase, with the most steps to be taken. Proper planning helps setting the course of action and navigate the project from beginning on in the right direction. The execution phase in comparison provides far less processes:

11. *Coach the project team* - PMC focuses on leadership-by-coaching provided by the project manager. The PMC practitioner should balance the needs of the project team and the individual. Coaching key developers individually and utilize them to implement behavioural changes using tools like “cultural hacking”. But goals set in an group may require tailored action plans adjusted to the needs formulated by the team and the individual.

12. *Involve People Concerned* - Project goals cannot be realistically achieved as individual goals, but require involvement of the team. In a project not every person important for goal achievement is a member of the project team. In PMC every stakeholder needs to be aligned with the teams’ goal commitment. Gaining commitment of external stakeholders towards internal and external goals helps internalising goals and create acceptance for them.

13. *Maintain Trust* - Maintaining trust is a process that accompanies the whole coaching cycle and is an on-going activity. The coach’s independence from the organisation is crucial to coaching (Whitmore 2002; Feldman & Lankau 2009). The project manager is not perceived as being independent. In so far the PMC practitioner always needs to be aware of the ambiguity and the need for balancing

his/her own appearance. The PMC practitioner needs to maintain clear coaching boundaries and defend his/her own independence and that of the coaching.

Evaluation provides understanding whether an option implementation was successful or needs adjustments. On-going evaluation helps adjusting the process to the evolving needs of the organisation.

14. *Monitor Progress* - After being experimented an option is evaluated. The information gained from the monitoring process enables the PMC practitioner to make adjustments to the goal defining process in diagnosis or the planning process in the light of the impact of the option chosen.

15. *Provide Feedback* - In PMC none of the planning stages (diagnosis, action planning, developing options) is a dedicated sequential phase. Goals, actions and options are set just in time to remain flexible regarding changes and new requirements. Continuous follow-up and periodic review is vital to reflect on key decisions and ensure the accuracy of goals, actions planning and options over time.

PMC is proposed a suitable approach to project management, where goals are perceived as highly demanding and organisational relations are fraught. The 15-step process of PMC is best suited for projects with complex team structures in challenging circumstances. This study suggests that core functions of PMC are building and maintaining trust, and developing the most appropriate route of action by experimenting options developed from joint action planning.

6.3 Contribution of Study

This study makes a significant contribution to the development of a theory of transformational leadership in project management. Tools and processes for a coaching project manager have yet been missed out in the scientific literature. It therefore contributes towards the development of the project manager profession.

The study is designed to explore a minimalist approach to leadership-style in project management, focused on investigating the effectiveness of a PMC model that is easily implemented, but has impact on team performance and motivation. The PMC practitioner focusses on practical actions to induce higher acceptance of responsibility and provides short review cycles to align results with formulated requirements and team capabilities. PMC is positioned as a tool- and mind-set of the

project manager for enhancing self-regulation by fostering team interaction and processes.

The agile character of PMC plays an important role in the vital intersection between experimenting options and the degree to which teams commit to option choices and their consequences. As an approach to transformational management it showed great effect, although applied in rather unstable conditions and against the resistance of the management. It makes a significant contribution to understanding motivational activities in project management, basing on the interaction of goal setting, reflecting on future states and concentrating on practical actions.

As a bottom-up approach PMC is applicable for enabling and empowering teams, and transform them into independent, intentionally self-regulated teams. This study expands the general understanding of PMC and its effectiveness in individual and group settings, and provides a theoretical framework for better understanding and applying PMC. Conducted within the context of software development projects in Germany, the study provides a greater understanding of the role that management-by-coaching can play in managing project teams.

The process of PMC (chapter 6.2) is the first of its kind to connect project management with coaching techniques and practical findings from a case study research applying PMC in a real project scenario. The model guides PMC practitioners through the required stages and reveals the knowledge areas required for successfully providing project management-by-coaching. Consistent with the critical realism paradigm the main findings formulated can be abstracted, transferred and applied to different contexts, as the results of the study are more than a "local theory" (Elden 1979), which can only be applied to the context it has been conducted in.

6.4 Limitation of Study and Areas for Future Research

Since a case studies' primary purpose does not lie in generalisation to understand a wider population of cases (Stake 2000; Yin 2009; Thomas 2011a), interpretative researchers are expected to find different results when performing the "same" study (Thomas 2009).

Therefore, it is expected that every researcher interprets results basing on his/her personal background, know-how, experience and idiosyncrasy. This raises the general questions as to the relevance of these findings to other contexts, and as to the transferability of tools and methods to other coaches. Success of coaching depends on perception and is also subject to interpretation.

Generalisation in case study research can only be gained by comparison of cases (Yin 2009). Comparison comprises a risk of bias through inadvertently relating categories, which have no dependencies (Thomas 2011a), and thereby building clusters based on the researcher's misinterpretation. To counteract this bias stringent comparability of the case studies needs to be safeguarded.

PMC as a leadership-style mainly based on project management and coaching techniques (Berg & Karlsen 2007) and combinations of emotional competencies (Dulewicz & Higgs 2003). As it is an on-going process based on management functions of briefing and debriefing associates (Whitmore 2002), it is deeply involved to the organisation it interacts with. The deep involvement of the researcher into the organisation allowed the researcher to directly interact with subjects of the research by conducting direct coaching sessions. This deep involvement raises further ethical questions, which could not be finally considered in terms of this study. According to Berg & Karlsen (2007) leadership by asking questions with the aim to promote person's interests is coaching, and leadership by asking questions with the aim to promote own interests is manipulation. Is it unethical then for the project manager to lead by asking questions with the aim to promote project interests, project goals?

Although Aguinis (1993) suspects a possible lack of rigour, he admits that action research provides a scientific method in fact-finding and problem solving, with the only notable difference being the researcher's active role in the research process. Conducting the study not only helped developing the project team at WEB, it also helped the researcher to develop his practice and use it as a form of professional learning, just like McNiff & Whitehead (2011) characterised action research.

The ethical question which behaviour changes might be induced through the researcher's participating in the study during a project remains unresolved in this study. It is insufficiently clear where the ethical boundaries for "cultural hacking" in

a project lie. The approach can be perceived as inspiring and enabling or simply manipulative and exhausting. In this field further research might be beneficial.

Participative discussions at the Kanban board had been fostered to secure direct interaction. The effect of the interaction alone cannot be separated from the whole process, so that it remains unclear what impact talking alone had on the coachees. This seems to be an important area for further research.

Additionally, the study did not consider team dynamics in accordance to team composition. It simply focused on the key developers, who (by chance?) were all male, of German descent, and aged between 30 years and 36 years. The whole group consisted of about 10% women, an appreciable number of Russian and other descent people, all covering the age range from 26 years to 58 years. There is no extent leadership-by-coaching research to assess the impact of team and group composition to the effects of coaching.

Finally, this research's original intention was to cover a multiple case study design in multiple companies. The intent was to implement coaching in the execution phase in software development projects, and compare the results using a cross-case causal network (Miles & Huberman 1994). Due to the circumstances the researcher was given the opportunity to stay at WEB for twelve months and compare eleven release cycles. This circumstance bore the chance to compare the defect rate of the releases in dependence with the project manager, while the resources available for the release remained mostly unchanged. Conducting four action cycles in the same company aroused the potential to pass options and best practices to the next cycle and to extend the phase of establishing a coaching relationship to the whole period of time. The attempt to analyse effects in a case dynamics matrix (Miles & Huberman 1994) in this setup more and more turned out to be impractical, while using a cross-case causal network (Miles & Huberman 1994) did no longer match the study set-up. The strength especially regarding generalizability intended to be gained from the cross-case causal network (Miles & Huberman 1994), was sacrificed to the circumstances.

Conducting the research in one organisation provided the opportunity to consider the findings from the previous coaching cycle for the next. The backside of this opportunity was that cultural differences in different companies or countries could not be taken in consideration. Focusing on one organisational unit in one company

prevents the research to gain insight into a wider context, like comparing companies on a national or even international level.

Further work is required to explore the effect of a particular coach to a particular team. This study explored the effect and evolvement of the researcher's coaching style on a particular group. It does not consider effects of the researcher's coaching style on other groups in other organisational settings. Implementing and exploring the effects of PMC in other companies located in Germany or companies in other countries would be a fruitful field for further research.

6.5 Findings of the Study in Retrospect

The main study was finished by the end of June 2014. The data collected was analysed, condensed, interpreted and written-up in an on-going process following a critical realist epistemological paradigm adopting a case study action research, following the grounded theory methodology. The process of analysis and formulating a model to PMC was finished in September 2015. After that a process of general revision of the thesis was conducted.

Meanwhile, the researchers work-life did not stand still. In July 2014 the researcher got contracted as interim manager to design and implement a demand management department as interface between software development and business units for one of Germany's largest online book retailers. In February 2015 he joined an online fashion retail company with the mission to repatriate the Spain-based software development unit. Besides adapting, implementing and introducing software development processes and methodologies, he was responsible for setting up a project to plan, orchestrate and conduct the implementation of a new international shop system based on an IBM standard product. The engagement was finished in August 2016.

In both engagements the researcher implemented a project management approach based on the PMC model formulated in the findings of this thesis. In both cases, other than in the main study, the model and the approach were explained to the management and its usage was agreed by both, management and team members. The application of joint diagnosis, development and experimentation of options, total

transparency and empowerment of the team bore project organisations that lay foundation for the functional units to be established.

The practical application of the PMC approach in real-world project scenarios even lay greater emphasis on the agile character of the approach. PMC in reality turned out to be most vital for experimenting options and the team's option choices.

PMC showed great effect regarding project's organisational stability. The teams were highly motivated and supportive and exceeded team goals on a regular basis. PMC in both applications made a significant contribution to understanding of motivational activities and helped transforming the team towards independence and self-regulation. The model helped the researcher as practitioner to guide the team members through the stages required and helped keeping the continuous improvement cycle up and running.

The effects explored convince the researcher that PMC can be transferred and applied to different contexts, like different companies in different industries, and yet, maybe even in different countries. The researcher is encouraged to apply PMC in future assignments and create a training program for project managers based on PMC.

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APPENDIX A – Interview Structure & Data Matrices

This appendix covers the interview schedule that was used to gather initial data for sociometric analysis. During the interview the researcher took notes in his notebook and condensed the information in a memo (Miles & Huberman 1994). Memo-writing is crucial as it prompts the researcher to analyse data and codes early in the research process (Charmaz 2006).

Interviews

The interview used for initial data gathering to conduct sociometric analysis was intended to be conducted in two parts. Part one structured following an interview schedule of five questions. The time scheduled for this part of the interview was ten minutes.

Interview Part 1

1. What is the biggest challenge for the company in the project?

2. What is the biggest challenge for you personally in the project?

3. Have all aspects of work been considered from your perspective?

4. Are all resources required available?

5. Are the right people in the team?

Interview Part 2

The fifth question of Part 1 was used as an introduction to the second part of the interview. The second part of the interview was intended to be an unstructured conversation, where the agenda was mainly given by the interviewee. In case of a slowing down additional questions and side-information taken from the first part were used to keep the conversation fluent.

The scheduled time for the interview was 20 minutes with a buffer time of additional 10 minutes. The interview was conducted with all team members, with an average duration of 30 minutes. 12 minutes were usually required for the unstructured part.

When the interview was conducted with iDev1 and eDev2 on January 15th 2013 it was conspicuous, that the first part alone took more than 30 minutes to finish. The

following conversation afterwards took in both cases nearly one hour to complete and left a set of questions and speculations open.

From the notes taken a short memo was composed and captured in the project diary.

Memos

From the notes taken in the interviews with iDev1 on January 15th 2013 a short memo had been composed by the researcher, which had been used as data source for sociometric analyses.

Subject: iDev1 Date: January 15th 2013	
PART 1	
What is the biggest challenge for the company in the project?	He organises his projects usually using an agile methodology, which worked perfectly well in the past. The company is not prepared for running a project with an effort of over 2000 man-days agilely.
What is the biggest challenge for you personally in the project?	Make the people available when required. Make the people listen. Make the people follow plans. Establish as lead developer.
Have all aspects of work been considered from your perspective?	The templates are well known. Development has never happened without his influence. They only need to be adapted to the new requirements.
Are all resources required available?	No. There is so much to do that at least two more software engineers are required. He remarked that the external developers should not be used to plan and implement the core system (which they had as experts

	been hired for).
Are the right people in the team?	He thinks so. He is not so sure about eDev2, because she as a trainer for the CMS might be too much theory driven.
PART 2	
IDev1 admits that he is not very familiar with modern methods of software engineering and development. But as he was the main developer for the CMS at LDI he is not supposed to be. The structure developed evolutionary and he is the only person who understands the system. External developers cannot help him, because they were not able to understand the system fully due to the short time they are considered to work on the project. Secondly he has to maintain the systems when the externals are gone. So it does not make much sense to use other techniques but the ones he is familiar with. The ongoing discussion reveals that he is an unstable person. His tactics to avoid challenging questions and to commit to facts is to switch to more and more detailed level. Any suggestions provided are fought back with a sentence beginning with "...but you did not take into consideration that...". This tactic is also used, whenever the researcher in the role of the project manager tries to verify work packages for a detailed project planning.	

Matrices

Strains, Difficulties created	Underlying Issues (As seen by researcher)	How coped with	How resolved: type of resulting change
External Experts are not consulted by internals for creating solutions	The internal developers fear a loss of control when integrating external knowledge, which they might not be able to replicate. They fear to create a state of replaceability for themselves, as the company is organised very hierarchical. There is no positive error culture, allowing people to learn from mistakes made. The learning organisation is unacquainted.	Conduct workshops, where knowlege gaps/solutions are identified collaboratively	Increased use of moderated workshops (P) Development of conflict free communication (C)
External Consultants are used for minor, supporting work	External developers are kept from core development. Firstly because the internals want to be the ones who provided the solution, and secondly the internals want to ensure that they fully understand the logic of the solution.	Conduct workshops, where the knowledge to create the solutions is transferred from external to internal developers	Increased use of moderated workshops (P) Development of conflict free communication (C) Implementation of knowledge transfer workshops (S) Increased external supervision of implementation (S)
Internals are regularly not available for consultation and clarification	Unit Leader is also Release Manager. He takes hold of the internal ressources without respect for their commitments and liabilities. He fears the loss of control over his employees, when they are totally involved in project work. The internal ressources are not willing to defend themselves on the basis of his hierarchical level.	Implement regular Jour Fixe Meetings to report on the status, efforts and progress the individuals make. Describe and explain characteristics of Projects in delimitation to Releases.	Implement Jour Fixe with Management (C)
iDev1 does not fill out the role of the required software architect	iDev1 was declared Software Architect without formal training or eduction. From his personality he is not a team player, not very empathic or collaborative. His technical knowledge is perceived as sufficient by the external experts.	Install eDev1 informally in the role of the software architect.	Implementation of knowledge transfer workshops (C) Solution knowledge transfer sessions between iDev1 and eDev1 (S)
Development team has not separated 'war room' and is spread over diverse places	TUL wants to avoid a strong commitment of the team members to the project. He interprets a strong commitment as sign of disintegration and loss of control over his department.	Book a meeting room for the whole project phase and invite all team members to daily meet for thirty minutes to discuss their daily business.	Implementation of daily stand-up meetings with all team members (P) (C)
Individuals have to spend effort for the Release whenever required, no matter what the project planning stipulates	TUL is aware of the fact that he disturbes and compromises the Project. He also knows that the internal ressources are not willing to defend themselves due to his hierarchical level. He does it to demonstrate his power.	Discuss the issue and problem with TUL and his supervisor.	Implement Jour Fixe with Management (N)

(P) Procedural Change
(C) Climate Change
(S) Structural Change
(N) No Result

Table App-A: CDM (Case Dynamics Matrix)

		Direct Effects		Meta Effects		Side Effects	
	Effects on	+	-	+	-	+	-
Coaching Objectives	Individuals	Effective, focused communication		Avoiding conflict by avoiding misapprehension		Saving of time through more efficient communication	
		Personal upgrading by achieving knowledge	Overburdend by ineffecient communication	Qualification increases motivation and engagement	Excessive demands decrease motiviatoin and engagement	Coverage of personal interest / Skill Matrix	
		Sharing knowledge perceived as upgrade	Sharing of own knowledge perceived as trheat	Higher appreciation of associates	Associates feel interchangeable		
	Team	Feedback Culture		Team Dynamics increase		Increase of team's self-confidence	Trepidation at the end of the project due to following team dissolving
		Experts consulti in their area of expertise	Time for knowledge transfer	Knowledge shared between team members	Dilution of clear competences	Compensation of absence due to illness	
		Increase level of expertise	Project Teams split up and have to be re-created	Faster Team building through more experienced team members	Exclusion of unexperienced team members	Increase of readiness to assume risk	
	Organisation	Team increases knowledge/competence for		Problems can be solved by internal teams	Aversion to external consultancy increases	Cost-efficient implementation by renouncing external experts	
		Learning Organisation	Loss of power of administrative management	Resolution of novel scopes of work	Insider relationships between associates		
Seen by Organisation	Individuals	Individual social development		Enhancement of degree maturity		Talent detection; identification of fields for career advancements	lower priorisation of specific career advancements by organisation
		Individual professional developemnt					
	Team	Efficient collaboration	Every team set-up requires time to develop its efficiency	Avoidance of unnecessary escalations	Critical information remains within the team (new non-transparency)	Time savings for productive tasks	
	Organisation	Increase of production quality	Administrative overhead			Basisfor lessons learned for further project plannings	Time demanded for project revisions
Seen by Administrator	Individuals	Individual professional, technological development	Overloading of individuals with information, which does not fit	Increased motivation and engagement	Retreat, Demotivation		
	Team	Increase of team competence	Decoupling of administrative management	Enhancement of degree maturity	Loss of control		
	Organisation	Increase of production quality	Administrative overhead			Basis for lessons learned for further project plannings	Time demanded for project revisions

Table App-A: CEM - Coaching Effects Matrix

APPENDIX B - Guiding Questions for PM Socialising

Questions for informal team member conversations

What is your educational background?

What are your/your team's objectives at WEB?

What are your objectives as a team member of Frontend/Middleware/Backend?

What does your team expect from you?

What do you find most important about developing software artefacts for the releases?

What do you find is the most important success factor for getting the job done?

What do you think is most needed to relieve pressure from the process of software development?

What do you think you most need to increase the software quality?

How do you feel about working for WEB?

What are the main impediments to software development at WEB?

How do you feel about working here?

APPENDIX C – Guiding Questions for Goal Achievement

Setting clear targets

What are your goals at WEB?

How can you improve on what you are already achieving?

What do you need to be able to do that you are not currently doing?

What competencies do you feel it is important for you to acquire?

Rephrase negatively stated goals positively.

Is the goal described sufficiently specific?

Is the goal sufficiently ambitious?

What would be your ideal outcome this week?

When do you want to have it achieved by? How much time would then be left for other goals?

Setting out a detailed plan

To achieve this goal (repeat back), what will you need to do?

What are the specific steps needed to reach your target?

What is your target date for achieving these steps?

Can you think of anything that may prevent you from achieving it? How can these be overcome?

What help do you need for you to achieve ...?

What will you do to obtain this support?

How can I help you?

Ensuring and increasing self-management capabilities

Do you feel you are committed to this goal?

Do you believe you are able to achieve your goal? What happens next?

Can you reflect on the next task and goal if you achieved the actual one?

Can you evaluate and report your own progress on a regular basis?

Is your detailed plan still valid? Are the dates correct? Can it still be achieved?

Are there tasks to be solved by others you are waiting for?

Is there anything you can do to help other team members resolve open tasks?

APPENDIX D – Release Request

Release-Auftrag: November Main 2013

Projektleiter IT Web: Andreas Rein (PL)

Projektrahmen

Rollen	Besetzung
Release-Auftraggeber	
Projektleiter Release	Rein, Andreas
QA – Release -- Verantwortlicher	
QA – Umgebungs --Verantwortlicher	
Portale & Orderentry --Verantwortlicher	
Logistik & Automation --Verantwortlicher.	
Environment -- Verantwortlicher	
Produkt- Konfiguration Core-Systeme	
Enterprise IT Architekt	
Applikations-Support Verantwortlicher	
Leiter AFM	
Leiter IT PMO/ Ansprechspartner Konzerndatenschutz	
Leiter Operation Planning	
Leiter RM	

Quality Gates	
QG1:	11.09.2013
QG2:	02.10.2013
BzA:	10.10.2013
QG3:	11.10.2013
QG5:	07.11.2013
QG6:	10.11.2013

Leistung (in PTs)	
Lieferleistung Gesamt	**384**
Deploymentleistung Gesamt	**353**
Lieferleistung für die Fachbereiche	
Bestätigte Lieferleistung: (inkl. Analyse-Leistung)	341
Lieferleistung für IT-Themen Refactoring / IT-Maßnahmen	43

vereinbarte Umgebungen	
Phase Entwicklung	3Test
Quality Assurance	3Test

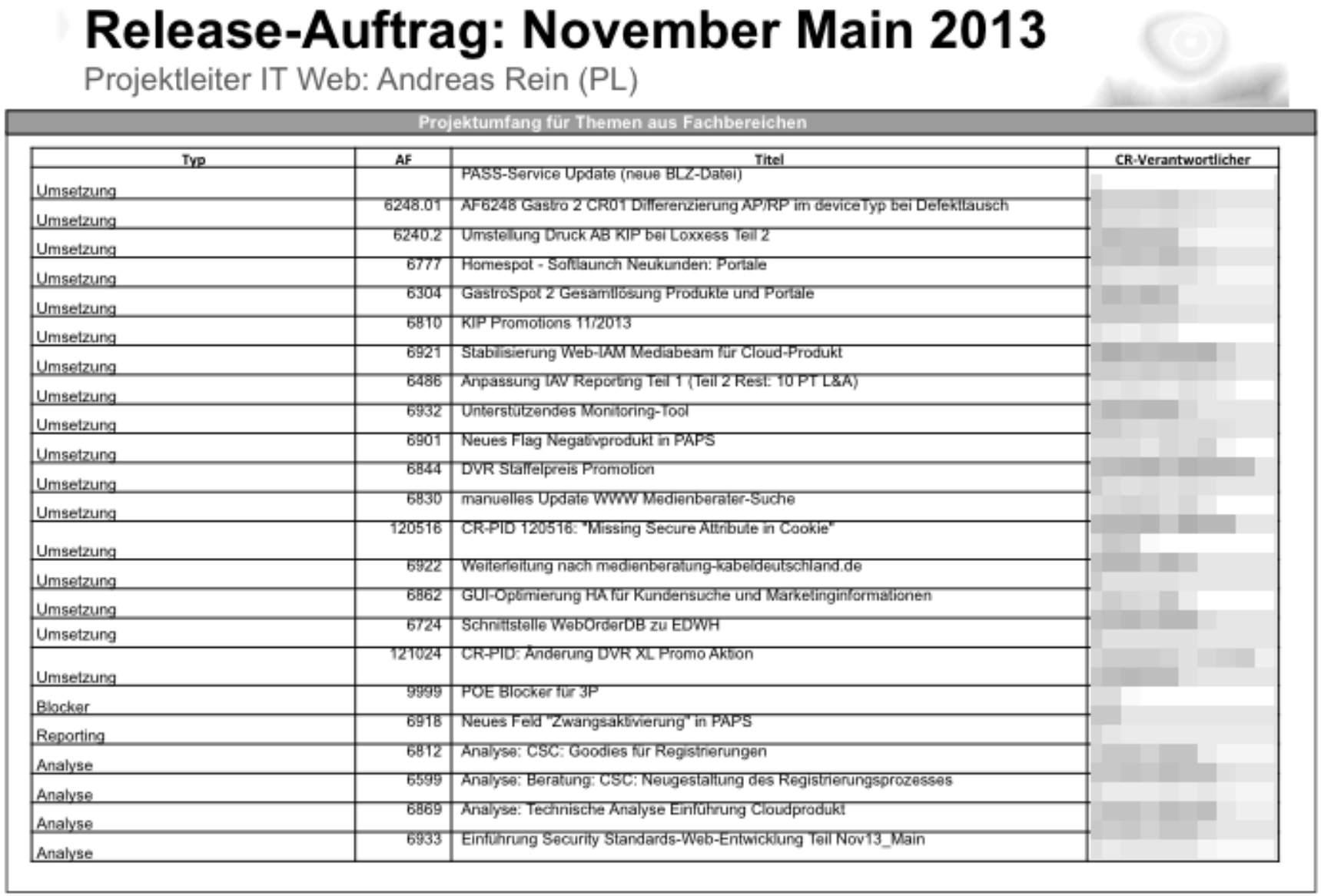
Zulieferungen / Wer

Zulieferungen seitens Agenturen erfolgen in Abstimmung mit dem Fachbereich sowie den CR – Verantwortlichen

Rahmenbedingungen/Offene Punkte

- keine

Figure App-D: Release Request



Release-Auftrag: November Main 2013

Projektleiter IT Web: Andreas Rein (PL)

Projektumfang für Themen aus Fachbereichen

Typ	AF	Titel	CR-Verantwortlicher
Umsetzung		PASS-Service Update (neue BLZ-Datei)	
Umsetzung	6248.01	AF6248 Gastro 2 CR01 Differenzierung AP/RP im deviceTyp bei Defekttausch	
Umsetzung	6240.2	Umstellung Druck AB KIP bei Loxxess Teil 2	
Umsetzung	6777	Homespot - Softlaunch Neukunden: Portale	
Umsetzung	6304	GastroSpot 2 Gesamtlösung Produkte und Portale	
Umsetzung	6810	KIP Promotions 11/2013	
Umsetzung	6921	Stabilisierung Web-IAM Mediabeam für Cloud-Produkt	
Umsetzung	6486	Anpassung IAV Reporting Teil 1 (Teil 2 Rest: 10 PT L&A)	
Umsetzung	6932	Unterstützendes Monitoring-Tool	
Umsetzung	6901	Neues Flag Negativprodukt in PAPS	
Umsetzung	6844	DVR Staffelpreis Promotion	
Umsetzung	6830	manuelles Update WWW Medienberater-Suche	
Umsetzung	120516	CR-PID 120516: "Missing Secure Attribute in Cookie"	
Umsetzung	6922	Weiterleitung nach medienberatung-kabeldeutschland.de	
Umsetzung	6862	GUI-Optimierung HA für Kundensuche und Marketinginformationen	
Umsetzung	6724	Schnittstelle WebOrderDB zu EDWH	
Umsetzung	121024	CR-PID: Änderung DVR XL Promo Aktion	
Blocker	9999	POE Blocker für 3P	
Reporting	6918	Neues Feld "Zwangsaktivierung" in PAPS	
Analyse	6812	Analyse: CSC: Goodies für Registrierungen	
Analyse	6599	Analyse: Beratung: CSC: Neugestaltung des Registrierungsprozesses	
Analyse	6869	Analyse: Technische Analyse Einführung Cloudprodukt	
Analyse	6933	Einführung Security Standards-Web-Entwicklung Teil Nov13_Main	

Figure App-D: Requested Tasks

APPENDIX E – The Kanban Wall

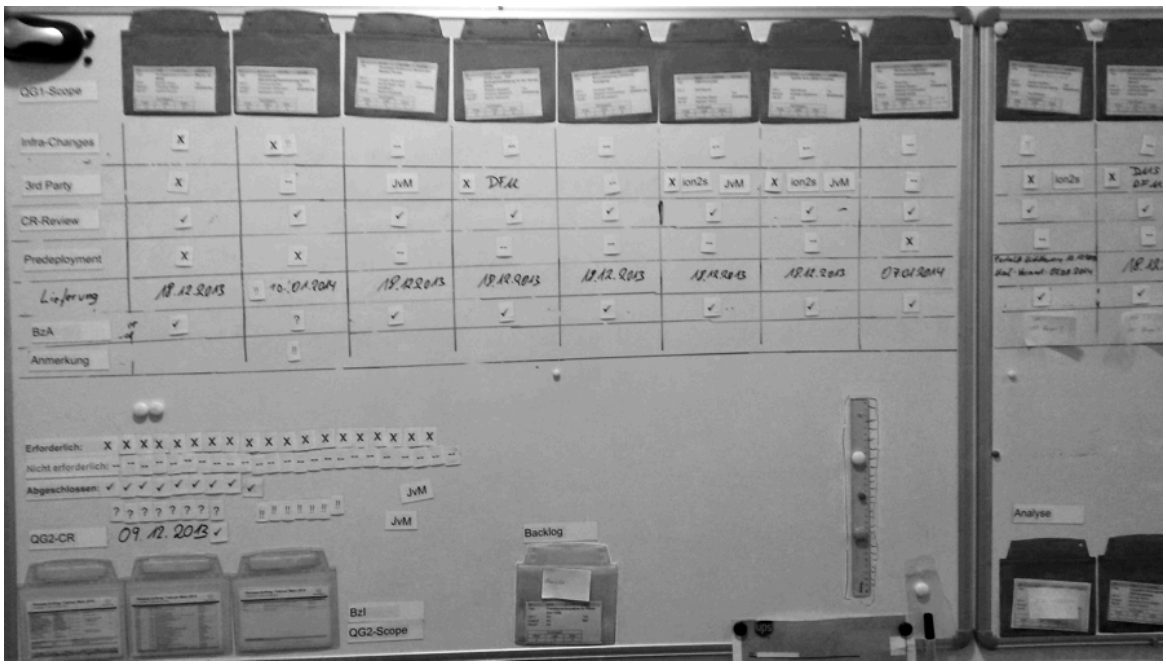


Figure App-E: Kanban Board 1

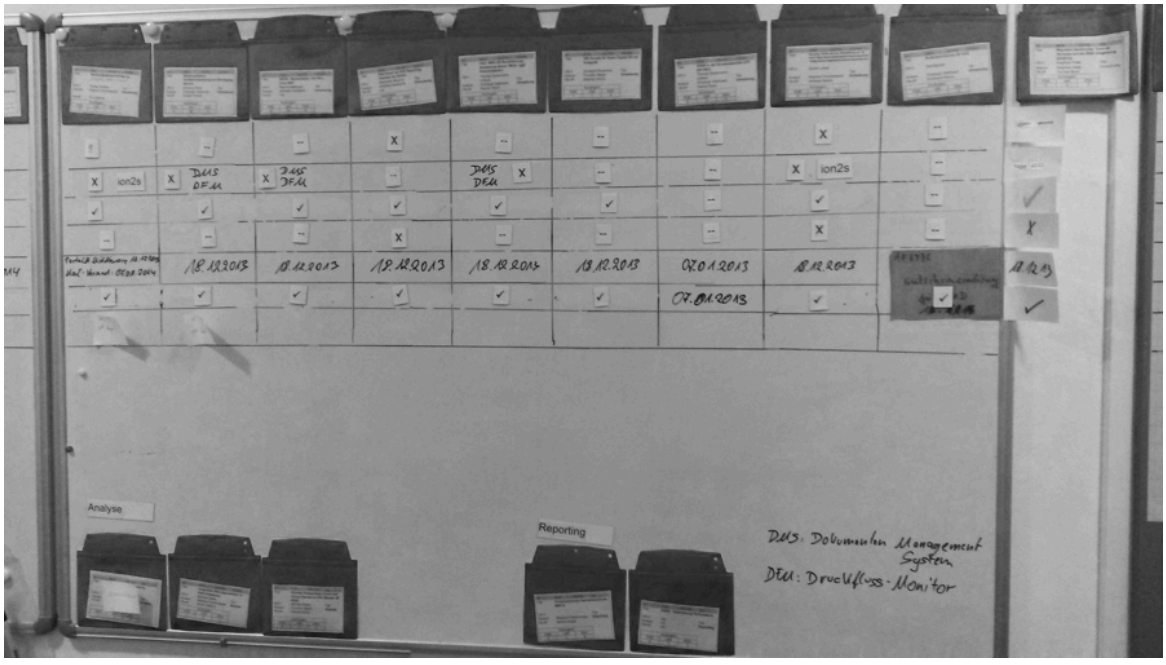


Figure App-E: Kanban Board 2

APPENDIX F – Project Success Report

Betreff: Die Aprilzahlen
Datum: Freitag, 11. April 2014 09:59:44 Mitteleuropäische Sommerzeit
Von: [redacted], Ralf
An: Rein, Andreas (Extern), [redacted]
CC: [redacted]

Showstopper: 0
Severe: 1
Medium: 1
Minor: 3

Hotfixes: 0

Eine Medium PID (Weborder DB) wurde bereits in der Releasnacht per WR behoben.
Die PID wurde zudem vor offiziellem Start des QG7 eingestellt.
Aus beiden Gründen wird diese nicht gezählt.

Gruß
Ralf